



# **ALL INDIA COUNCIL FOR TECHNICAL EDUCATION**

## **AGENDA**

**TWENTY-FIFTH MEETING**

**April 18, 1981. 10.00 A.M.**

**VIGYAN BHAWAN**

**NEW DELHI**



**GOVERNMENT OF INDIA  
MINISTRY OF EDUCATION & CULTURE  
NEW DELHI**

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

25TH MEETING

DATE: 18TH APRIL, 1981 PLACE: COMMISSION ROOM 'H'  
TIME: 10.00 A.M. VICY I B. V. V. N.  
NEW DELHI.

A G E N D A

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Item No.1: To confirm the Minutes of the last meeting of the Council held on 17th February, 1961.

The Minutes of the meeting of the Council held on 17th February, 1961, approved by the Chairman, were circulated to the members. As no comments have been received from any member, the Minutes may be confirmed.

A copy of the Minutes has been placed at Annexure-I.



Item No.2: To report on the membership of the reconstituted Council.

The Council is reconstituted after every three years. The last term of the Council expired on 31.7.1979. The Council has since been reconstituted for a further period of three years i.e. from 1.8.1979 to 31.7.1982. A list of the members of the reconstituted Council may be seen at Annexure-II.

In the Government of India Resolution establishing the All India Council for Technical Education, the National Council for Rural Higher Education was given representation vide constituency(s) under para 3. (1) of the Resolution. The National Council for Rural Higher Education has since become defunct. Meanwhile the Pharmacy Council of India, constituted under the Pharmacy Act, 1948 had been pressing for representation on the All India Council for Technical Education. Para 3(1) of the Resolution has, therefore, been amended with the approval of Chairman, All India Council for Technical Education to give representation to the Pharmacy Council of India under the Constituency (s) in place of the now defunct Council for Rural Higher Education.

The matter is reported to the Council for information.

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Item No.3: To report on the Member of the  
Reconstituted Coordinating Committee  
of the Council.

The Coordinating Committee of the  
All India Council for Technical Education  
reconstituted after every three years. The  
term of the Committee expired on 31.7.1979. The  
Committee has since been reconstituted for the  
term 1.8.1979 to 31.7.1982. The list of members  
of the reconstituted Committee may be seen at  
Annexure-III.

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Item No. 4:- To report on the membership of the reconstituted Boards of Studies of the Council.

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The undermentioned are the four All India Boards of Technical Studies set up to assist the Council in all academic matters in the respective fields. The terms of office of each of these Board is three years:

1. All India Board of Management Studies.
2. All India Board of Post-graduate Studies and Research.
3. All India Board of Technician Education.
4. All India Board of Under-graduate Studies in Engineering and Technology.

The last term of all these Boards expired on 31st July, 1979. All the Boards excepting one of them Board have been reconstituted for their next term of three years from 1.8.1979 to 31.7.1982. The list of the members of the reconstituted Boards are given in the statements, which may be seen at Annexures IV, V and VI. The Board of undergraduate studies is being reconstituted.

Item No.5: To report on the membership of the reconstituted Regional Committees of the Council.

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There are four Regional Committees of the All India Council for Technical Education. These are reconstituted after every three years. The following Regional Committees have been reconstituted for a further period of three years as indicated below:-

i)	Northern Regional Committee	15.2.1980 to 14.2.1983
ii)	Southern Regional Committee	30.10.1979 to 29.10.1982
iii)	Eastern Regional Committee	10.4.1979 to 9.4.1982
iv)	Western Regional Committee	13.10.1979 to 12.10.1982

The lists of the members of the reconstituted Regional Committees may be seen at Agendas - VII, VIII, IX & X.

Item No.6: To report the progress of action on the recommendations/decisions made by the Council at its last meeting held on February 17, 1978.

Recommendations/Decisions

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Action Taken

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1. The Council reiterated that its earlier recommendations of minimum requirements for maintenance of standards in technical institutions, be implemented by the State Government specially with regard to the norms set by it for expenditure on consumables and raw materials.  
  
The recommendation of the Council was circulated to all the State Governments and Union Territories with the request to implement the same. The matter is still under consideration of the State Government/U.T.
2. The Council noted that the opportunities under the Quality Improvement Programmes are not being utilised adequately because the State Govts. are insisting that the teachers sponsored under the Programme execute a bond to serve the institutions for a specified period. The Council recommended that the State Govt. be again requested not to insist on such a condition.  
  
The matter is being pursued with the State Government. The final reply from most of the States is awaited.
3. The Council further noted that the amount of stipend paid to the teachers under Quality Improvement Programme is inadequate and the matter requires to be re-examined.  
  
The matter is being processed by the Ministry with the Finance.

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4. The Council noted that the earnings out of consultancy/ testing are being treated by most of the authorities as revenue for the purpose of determining grants. Such a practice is acting as disincentive in taking up these important activities. The Council recommended that the State Govts. and other authorities concerned be requested to permit the earnings from consultancy/ testing to be utilised for the purpose of Research and Development
5. Within the approved annual intake capacity each institution should increase the supply of technical manpower by improving the efficiency and effectiveness of educational processes. Shifts in the intake capacities between disciplines may be effected to cater to the emerging manpower needs.
6. All new courses should be based on well established and well defined manpower needs.
7. A reliable information system is a pre-requisite to planning, especially in the field of technical education and training. A national manpower information system should be established with a lead centre in the Institute of Applied Manpower Research for the storage, updating, retrieval and analysis

The matter is being pursued with the State Governments.

Recommendations of Council have been conveyed to all State Govts. for implementation.

Recommendations of the Council have been conveyed to all State Govts. for implementation.

The scheme has been included under the Central Sector in the Sixth Five Year Plan with the approval of the Planning Commission. The matter is being further processed.

of manpower information to assist technical education. The Institute of Applied Manpower Research should be suitably strengthened for this purpose with provision of requisite facilities.

8. Credit system with provision for multi-point entry in part-time and full-time programmes should be introduced.
9. Industrial and rural development problems be identified and a greater emphasis on research programmes to tackle such problems be given in keeping with the national needs. Technical education institutions having the potential and capability to undertake problem-oriented and application oriented programmes be selected and properly supported to facilitate substantial contribution to rural and community development.

The recommendation has been communicated to universities having Engineering Colleges, State Board of Technical Education and Directors of Indian Institutes of Technology with the request to implement the same.

The recommendation has been communicated to all State Govts. and Union Territories, Directors of Technical Education of all States, Registrars of all Universities having engineering colleges/technological departments with the request to implement the same.

A scheme of Institute-Society Interaction has been included with the approval of Planning Commission in the Sixth five year plan under the Central Sector and a National Expert Committee has been set up under the Chairmanship of Shri A.S.Chesma, Vice-Chancellor, Agricultural University Indhiana to formulate the details of the scheme inter-alia covering this recommendations.

10. Institutions be encouraged to set up Consultancy Centres to promote consultancy activities.  
The State Governments have been requested to take necessary action to promote consultancy activities and give necessary help to the technical institutions in their States to establish Consultancy Centres.
11. Relevant Management Education be integrated with professional courses at degree and diploma levels.  
The State Governments have been requested to move the State Boards of Technical Education, the Technical Instts. and other academic agencies to integrate relevant management education with professional courses both at degree and diploma levels.
12. Courses in Management education be re-structured to provide for managerial manpower for small and medium sized industries also for sectoral needs such as transport, power, health, education and agriculture, cooperation and cooperative banks.  
Recommendations have been communicated to Indian Institutes of Management at Ahmedabad, Calcutta and Bangalore with the request to take necessary action for re-structuring of the courses to meet the requirements of Managerial Manpower of these sectors.
13. Selected Polytechnic act as focal points to promote transfer of technology to the rural community. Such polytechnics should be designated as 'Community Polytechnics' and adequate support provided.  
Necessary action has been taken. The position has been reported separately under Item No.18.
14. Selected Polytechnics should be given central assistance to conduct advanced technician programmes.  
Necessary action has been taken. The position has been reported separately under Item No.22.



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15. Support be provided to strengthen the work of Curriculum Development and Research related to problems of technical education.

16. In addition to minimum academic qualifications laid down by AICTE, one year's industrial experience for lecturers and two years for senior staff is considered desirable. All recruitment should be strictly on merit, by open competition and on all India basis, subject to reservation because of constitutional requirements.

17. To ensure high quality performance, appropriate measures be taken for providing the necessary facilities. In this context the feasibility of making appointments to senior teaching posts (i.e. Professors and Heads of Institutions) on contract basis for five years, renewable after assessment be considered.

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Recommendations have been conveyed to all State Governments Union Territories and Directors of Technical Education with the request to do the needful.

The recommendation has been communicated to all the State Governments and Union Territories with the request to implement the same. The qualifications have also been revised and the position is reported under Item No.11.

The recommendation has been communicated to all State Govts. with the request to implement the same.

18. Personal promotion Schemes should be established to enable promotion of deserving young faculty stagnating at a particular level. Such promotion be restricted to 20% of the sanctioned strength.
19. An appropriate staff appraisal scheme based on a methodology acceptable to the faculty should be introduced. This would also enable identification of the needs of staff development.
20. Facilities for Masters' Degree training under the Quality Improvement Programme be progressively reduced. Considering the number of teachers involved, provision for Doctoral Programme under QIP be increased to enable 250 teachers every year to enrol for Doctoral Programmes.
21. Provision be made to organise short-term courses for Polytechnic and collegiate teachers in educational technology.
22. Selected Engineering Colleges should organise under Quality Improvement Programme three-year courses to enable Polytechnic teachers with diploma qualifications to get Bachelor's degree.
- The recommendation has been communicated to all State Governments with the request to implement the same.
- The recommendation has been communicated to all State Governments with the request to implement the same.
- The recommendation was communicated to the Quality Improvement Programme Centres for necessary action.
- The recommendations have been communicated to Quality Improvement Programme Centres, Directors of Technical Education and the Indian Society for Technical Education for implementation.
- A National Expert Committee was set up with the approval of the Chairman which has formulated a scheme for this purpose. The matter is being further processed in consultation with the Planning Commission.

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23. Polytechnic teachers should be sponsored under the Quality Improvement Programme for industry oriented post-graduate diploma/degree courses organised for the purpose.

24. In order to ensure purposeful and meaningful interaction and collaboration between industry and institutions, "Fellowship" in the institution for willing and capable personnel from the industry be instituted. Similarly 'Residency' for institutional faculty be provided in the industry on the lines of QIP. Additional budgetary provision on staff to the tune of 20% should be made to finance these schemes.

25. Admission to both degree and diploma courses be on the basis of carefully designed entrance tests. These tests should be conducted State-wise common to all institutions.

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A National Expert Committee was set up with the approval of the Chairman which has formulated a scheme for this purpose. The matter is being further processed in consultation with the Planning Commission.

The recommendation has been communicated to the State Governments and Union Territories with the request to make additional budgetary provision on staff and to institute 'Fellowships' for personnel from industry and 'Residency' for faculty members from the institution. Provision has also been made with the approval of the Planning Commission for a Central Scheme for the purpose under new programmes of Quality Improvement.

The recommendation has been communicated to all State Governments, Union Territories and Directors of Technical Education for implementation. The U.P. Government has already implemented the recommendation.

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| 26. In order to reduce drop outs and other forms of wastage, it is necessary that special efforts in the form of remedial courses be carried out in the initial stages to help weaker students. | The recommendation has been communicated to the State Governments and Union Territories with the request to implement the same.  |
| 27. Flexible programmes of continuing education through part-time/full time courses be introduced at all levels for serving personnel.  | The recommendation has been communicated to the State Governments and Union Territories with the request to implement the same.  |
| 28. Representation be given to students in bodies concerned with framing the curricula.   | The recommendation has been communicated to the State Governments and Union Territories with the request to implement the same.  |
| 29. Schemes for training of technical supporting staff be started under "Quality Improvement Programme".  | The recommendation has been communicated to Quality Improvement Programme Centres with the request to formulate the scheme and implement the same under Quality Improvement Programme. |
| 30. To ensure better and more effective library services, qualified and trained library staff to be provided.   | The recommendation has been communicated to all the State Govts. and Union Territories with the request to implement the same.   |

31. Adequate support be given to institutions to organise Audio-visual and Reprographic services.
32. On an experimental basis, Learning Resource Centres be established in a few selected institutions.
33. The replacement of laboratory equipment which have become obsolete due to technological and curricular changes be examined. Laboratories be modernised with relevant, and versatile equipment with more instructional potential.
34. The tasks of planning and organising Technical Education from the level of craftsman to that of technologists be brought under a single National Agency both at the Centre and States to ensure balanced development through an integrated approach.

The recommendation has been communicated to all the State Govts. and Union Territories with the request to implement the same.

The recommendation has been communicated to the State Governments and Union Territories with the request to implement the same.

The recommendation has been communicated to the State Governments and Union Territories with the request to implement the same.

The matter is under the examination of the Government.

35. It is essential to optimise the utilisation of available resources and provide impetus to all the Centres engaged in Post-Graduate Programmes and Research. The Planning, organisation and prescription of norms for postgraduate and research programmes conducted at universities, Indian Institutes of Technology, Indian Institutes of Management and affiliated colleges should be coordinated by the Board of Post-Graduate Engineering Education and Research of the AICTE.
- The matter is under examination in consultation with the University Grants Commission.
36. The organisation of short-term courses under Quality Improvement Programme be coordinated.
- The necessary action has been taken and the organisation of various short-courses is being coordinated by the Indian Society for Technical Education.
37. The Regional Boards of Apprenticeship Training be adequately staffed and strengthened with a view to ensure purposeful planning and supervision of Apprenticeship Training Programmes.
- The recommendation of the Council is under constant examination.

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38. The Directorates should have organs dealing with Manpower Assessment, planning, coordination, controlling, monitoring and evaluation of technical educational programmes. Reorganisation of Directorates to enable them to perform these professional functions effectively be undertaken as a matter of urgency.

39. Administrative autonomy and powers of financial control be given to all technical institutions including Govt. institutions by bringing them under suitably constituted governing councils. Academic autonomy be given to institutions on a selective basis.

40. The concept of 'Adoption of Polytechnics' by Industry already recommended by the All India Council for Technical Education be pursued.

41. Short-term courses under Quality Improvement Programme in educational management be organised for training heads of institutions and Heads of Departments.

42. Setting up a Staff College for Technical Educators be examined by an Expert Committee.

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The recommendation has been communicated to all the State Govts. and Union Territories for implementation. Suitable plan provision is made in the annual plan of the different States for the purpose.

The recommendation of the Council has been communicated to all the State Govts. and the Union Territories to implement the same.

The recommendation has been communicated to all State Govts. and Union Territories for implementation. The matter is being pursued with the State Govts.

The recommendation has been communicated to all Quality Improvement Programme Centres and Indian Society for Technical Education for implementation.

An Expert Committee has been set up to examine the question in all its aspects. The Committee has yet to finalise its report.

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43. Maintenance of uniform standards in technical institutions in the country is the constitutional responsibility of the Central Govt. It is, therefore, necessary to coordinate and strengthen existing evaluation agencies.
44. To ensure effective implementation of policies and programmes of the Council, measures other than making it statutory, may be considered for the present.
45. The Plan allocation for Technical Education should be commensurate with the developmental outlay of the other user departments, since technical education is developmental investment.
46. To provide the necessary incentive to industry expenditure by industry on technical education including Management Education be deductible for purposes of Income Tax Assessment.
- The recommendations have been communicated to all State Govts. and Union Territories with the request to implement the same.
- Possible action in the matter was taken but it was not possible to ensure the effective implementation of the policies and programmes of the Council. The position has been reported separately under Item No.20.
- The recommendation was kept in view while formulating the proposal for the Sixth Five Year Plan. The Planning Commission however, could not approve the requested outlay due to limitations of funds.
- The matter is being pursued with the Central Board of Direct Taxes.



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47. The system of making available the Central Government's share for approved schemes directly to the institutions should be restored.

The matter is under examination in consultation with the Planning Commission.

48. The Council noted the recommendations of the Eastern, Northern and Southern Regional Committees. While noting the report on introduction of degree course in Chemical Engineering at D.D. Institute of Technology Nadiad, the Council desired that the factual position may be further looked into.

Degree Course in Chemical Engineering at D.D. Institute of Technology, Nadiad was approved in August, 1978.

49. The Council desired that the question of introduction of degree courses in Printing Technology be re-examined.

The Technician Board has appointed a Reviewing Committee to examine the question in all aspects. The final report of the Committee is awaited.

50. The Council agreed that there is no need to set up separate Agricultural Polytechnics for Agricultural Engineering/Agricultural Technology, but it would be advantageous to organise courses in Agricultural Engineering for the felt needs in various regions with the material resources of existing polytechnics. The Council further recommended that the introduction of relevant rural technology subjects in the conventional diploma courses and introduction of one year post-diploma

The recommendation of the Council has been communicated to all the State Governments and Union Territories for implementation.

courses in Agricultural Engineering/Rural Technology wherever necessary for the benefit of diploma holders in conventional subjects be encouraged. These institutions should work in close collaboration with K.V. Kendras and ICAR.

51. The Council recommended that the qualification for the post of lecturers (non-technical) be revised as under:-

"Master's degree in the subjects with 2 years teaching experience."

OR

"Graduate in respective branch of a recognised university with 2 years teaching or industrial experience plus a diploma from Technical Teachers' Training Institute."

52. Participation of practising managers in management education be encouraged by associating them with the faculty.

The matter is being examined by the Ministry.

53. The Council recommended that instead of setting up a Central Institute of Pharmaceutical Sciences, selected institutions be supported for postgraduate studies and research.

All the State Govts. were requested to examine whether there was need for expansion of facilities in Pharmaceutical Sciences at the post-graduate level in the existing institutions in the State and if so, to what extent. Replies have been received from the

State Governments and these are being considered. The proposal to introduce M.Pharm Course at Haryana College of Pharmacy, Delhi is also under consideration of the Postgraduate Board and University Grants Commission.

54. The Council recommended that the constitution of the Coordinating Committee of the All India Council for Technical Education be amended to include two Members of Parliament, one each from Lok Sabha and Rajya Sabha, instead of one from either House as at present.

The Coordinating Committee has been reconstituted accordingly.



- Item No. 7 To report on development schemes approved by the Chairman, All India Council for Technical Education since the last meeting of the Council.

Some time back the Council had decided that the recommendations made by the Regional Committees on the implementation of specific programmes of developments should be examined by its Secretariat and sanctioned with the approval of the Chairman and a report made on such programmes to the Council later. Since the last meeting of the Council held on 17th February, 1978, the Chairman, AICTE has approved the following programmes for development of technical education on the recommendations made by the Regional Committees. Details of the schemes are given in Annexure-XI

I. Schemes approved on the recommendations of the Eastern Regional Committee.

1. Introduction of a degree course in Pharmacy at the Assam Medical College, Dibrugarh.
2. Introduction of diploma courses in (i) Pharmacy and (ii) Textile Chemistry at the Government Polytechnic, Imphal (Manipur)
3. Introduction of diploma courses in Electronics and Tele-communication Engineering at the Kew Government Polytechnic, Patna and Government Polytechnic, Ranchi.
4. Shifting of venue of post diploma course in Automobile Engineering from Government Polytechnic, Gulzarbagh, Patna to New Government Polytechnic, Patna.
5. Introduction of a diploma course in Metallurgy at Asansol Polytechnic, Asansol (W.B.)
6. Introduction of diploma courses in Pharmacy and Secretarial Practices at Women Polytechnic, Calcutta.
7. Establishment of a Women Polytechnic at Hubnagar.
8. Upgradation of facilities at Tripura Engineering College, Agartala.

II. Schemes approved on the recommendations of the Northern Regional Committee.

1. Starting of a diploma course in Printing Technology on sandwich pattern at Thapar Polytechnic, Patiala.
2. Proposal of the State Government of Punjab for revision of estimates regarding programme of Faculty Development in the 4th Five Year Plan.
3. Proposal of the Union Territory of Chandigarh for the introduction of post diploma course in Production Engineering on sandwich pattern at the Central Polytechnic, Chandigarh.
4. Introduction of part-time diploma courses in Civil, Mechanical and Electrical Engineering in Polytechnics at Hoshiarpur, Batala, Amritsar and Jullundur City.
5. Introduction of 4-year part-time (evening) degree course for in-service diploma holders at Thapar Institute of Engineering and Technology, Patiala and Guru Nanak Engineering College, Ludhiana.
6. Introduction of 3-year diploma course in Arch.Assistantship at Government Polytechnic for Women, Jullundur City.
7. Introduction of 4-year degree course in Electrical and Electronics Communication at Guru Nanak Engineering College, Ludhiana.
8. Introduction of 4-year degree course in Mechanical Engineering with specialisation in Industrial Design at Thapar Institute of Engineering and Technology, Patiala.
9. Introduction of diversified diploma/post diploma courses in 4 Polytechnics at Kota, Ajmer, Alwar and Jodhpur.
10. Introduction of 8 new diversified diploma courses in various subjects fields at Allahabad Polytechnic, Allahabad.

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11. Introduction of 3-year diploma course in Electronics at K.I. Polytechnic, Roorkee.
  12. Proposal regarding provision of 162 additional hostel seats at the Harcourt Butler Technological Institute, Kanpur.
  13. Introduction of three year diploma course in Electronics and Communication Engineering at Haryana Polytechnic, Nalokheri.
  14. Introduction of 3½ year diploma course (sandwich type) in Production Engineering at G.B. Pant Polytechnic, Okhla, New Delhi.
  15. Introduction of a diploma course in Garment Fabrication Technology at G.B. Pant Polytechnic, Okhla, New Delhi.
  16. Introduction of 2-year diploma course in Agricultural Engg. at Chaudhary Polytechnic, Chaudhary.
- III. Schemes approved on the recommendations of the Southern regional Committee.

1. Introduction of diploma course in Mechanical and Rural Engineering at Sri Ramakrishna Mission Vidyalaya Polytechnic, Coimbatore(T.N.)
2. Introduction of a diploma course in Commercial Practices at Government Polytechnic, Nagarcoll.
3. Introduction of a post diploma course in Automobile Engineering at Nachimuthu Polytechnic, Pollachi.
4. Introduction of part-time degree course in Textile Technology at P.S.G. College of Technology, Coimbatore.
5. Introduction of post diploma course in Diesel Traction at Government Polytechnic, Tiruchirappalli.
6. Introduction of post diploma course in Refrigeration & Air Conditioning on sandwich pattern at P.A.C. Ramasamy Raja Polytechnic, Rajagopalapuram.

7. Introduction of diploma course in Costume Designing and Dress Making at Government Polytechnic for Women, Madurai.
8. Introduction of Diploma Course in Production Engineering at Thiragarajar Polytechnic, Salem.
9. Introduction of diversified diploma course in Electrical Machine Manufacture at P.S.G. Polytechnic, Coimbatore.
10. Introduction of diploma course in Automobile Technology at K.H.Kabbur Institute of Engineering, Dharwar(Karnataka).
11. Introduction of degree course in Civil Engineering at Sri Jayachamarajendra College of Engineering, Mysore.
12. Setting up of a separate Public Health Engineering Lab. at the B.M.S.College of Engineering, Bangalore.
13. Introduction of diploma course in Secretarial Practice at K.H.Kabbur Institute of Engineering, Dharwar.
14. Introduction of diploma course in Commercial Practice at Government Polytechnic, Karwar.
15. Introduction of degree course in Automobile Engineering at P.S.S.College of Engineering, Mandya.
16. Proposal regarding creation of hostel facilities for 240 students at P.S.S. College of Engineering, Mandya.
17. Introduction of B.Sc. (Engg.) degree course in Electronics and Communication Engineering at T.K.M. College of Engineering Quilon.
18. Introduction of Post-diploma course in Bio-Medical Engineering at Government Polytechnic. Kottayam.



19. Introduction of a diploma course in Architectural Assistantship at Women's Polytechnic, Trivandrum.
20. Introduction of degree course in Instrumentation and Control Engineering at N.S.S. College of Engineering, Palghat.
21. Introduction of Post-diploma course in Foundry Technology at Maharaja's Technological Institute, Trichur.
22. Introduction of degree course in Instrumentation Engineering at the College of Engg. Trivandrum.
23. Establishment of a Woman Polytechnic at Tirupati.
24. Introduction of post diploma course in Automobile Engineering at Motilal Nehru Polytechnic at Pondicherry.

IV. Schemes approved on the recommendations of the Western Regional Committee.

1. Introduction of one-year diploma course in Electronics and Radio Engineering at Government Girls Polytechnics, Ahmedabad.
2. Introduction of one year diploma course in Electronics and Radio Engineering at A.V. Parakh Technical Institute Rajkot.
3. Introduction of degree course in Chemical Engineering at D.D. Institute of Technology Nadiad.
4. Starting of a separate wing for girls at Sir Bhavsinhji Polytechnic, Bhavnagar.
5. Proposal of the State Government of Gujarat for establishment of a separate wing for girls at M.D. Polytechnic, Patan.

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6. Proposal of the State Government of Gujarat for increase of intake for the part-time degree course at L.D. College of Engineering, Ahmedabad.
7. Introduction of one year post diploma course in Bio-medical Instrument at Government Polytechnic, Ahmedabad.
8. Introduction of 2 years diploma course in Pharmacy at Gandhidham Polytechnic, Adipur, Kutch.
9. Introduction of diploma course in Pharmacy at Kamla Nehru College of Pharmacy, Aurangabad.
10. Introduction of diploma course in Printing Technology at Maharashtra Printing School, Pune.
11. Introduction of diploma course in Electronics and Radio Engineering at Govt. Polytechnic, Aurangabad.
12. Introduction of diploma course in Textile Technology at Govt. Polytechnic, Sholapur.
13. Introduction of a post diploma course in Foundry technology at B.M. Polytechnic Bombay.
14. Introduction of a diploma course in Textile Technology at S.V. Polytechnic Indore.
15. Introduction of a B.E. Electronics course Madhav Institute of Technology & Science, Jwalior.
16. Introduction of a diploma course in Food Technology at the Govt. Polytechnic, Panaji, Goa.
17. Revision of staff structure at the College of Engineering, Goa.
18. Introduction of a diploma course in Mining and Mine Surveying at Govt. Polytechnic, Panaji, Goa.

**V. Proposals approved in principle**

The following proposals were approved by the Chairman, All India Council for Technical Education in principle since the last meeting of the Council held on 17th February, 1978. The estimates are yet to be finalised/ approved.

**Northern Region :**

1. Introduction of Part-time course in Electrical Engineering with an intake of 30 students per year at Guru Nanak Engineering College (Polytechnic), Ludhiana.  
degree
2. Introduction of Part-time/course in Engineering (Civil, Mechanical, Electrical and Electronics) at Delhi College of Engineering, Delhi for in-service Diploma holders with an annual intake of 30 students to each course.

**Western Region :**

1. Introduction of B.Pharm degree course with an intake of 30 students per year at S.K.D.T. Womens' University, Bombay.

The matter is reported to the Council

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Item No.8:- All India Boards of Technical Studies

- (A) MATTERS FOR REPORT
- (B) MATTERS FOR DECISION

I. ALL INDIA BOARD OF MANAGEMENT STUDIES

Since the last meeting of the Council, the Board held six meetings on 1.4.78, 27.9.78, 17.4.79, 5.5.80, 6.10.80 and 23.2.81 respectively.

(A) MATTER FOR REPORT

- 1) Report of the Visiting Committee for the Indian Institute of Social Welfare & Business Management, Calcutta for additional physical facilities.

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Earlier the Board approved the proposal of the Government of West Bengal for starting two year full time MFA course in the institute of Social Welfare & Business Management, Calcutta, with an intake of 30 students. As additional physical facilities approved by the Board was not adequate, the institute made several requests to re-examine the whole issue. As such, the Chairman appointed a Visiting Committee which could visit the institute and re-examine the whole issue. The report of the Visiting Committee with recommendations on the additional requirements of the institute was placed before the last meeting of the Board held on 5th May, 1980. A copy of the report as approved by the Board is placed at Annexure XII. E.M. in his capacity as the Chairman of AICTE has also approved the report.

- 11) The report of the Special Committee for identifying one institute in the East and one in the South for special assistance.

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While considering the proposals of the Punjab University, University of Delhi and Jamnalal Bajaj Institute of Management Studies for special assistance for consolidation of their programmes during the Fifth Plan period, the Board at its meeting held in July, 1975 suggested that institutions in the Eastern and Southern Regions should also be identified for similar support. For this purpose, the Board constituted a Committee under the Chairmanship of Prof. V. S. Vyas which visited the PSG College of Technology, Coimbatore and Xavier Labour Relations

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Institute, Jamshedpur on 22.10.79 and 29.10.79 respectively. The Report of the Committee was placed before the Board at its meeting held on 5th May, 1980. The Board approved it with the following modifications:-

1. The paragraphs 2.4 and 2.5 will be deleted.
2. The words "non-University Institutions" may be interpreted as "Institutions other than the University Departments".
3. The scales of pay of the posts to be created will be the same as for the existing corresponding posts in the respective institutions.
4. The Institutions give an undertaking that they will maintain these posts from their own resources after the Govt. of India's assistance ceases.
5. The staff is recruited on the recommendation of the Selection Committees broadly constituted for similar posts in the Universities.
6. The assistance may be given by the Govt. of India to the extent recommended subject to availability of funds. Approval by Govt. of India for buildings may preferably be in terms of areas rather than amounts.

The report as approved by the Board at its meeting held on 5th May, 1980, was also approved by E.M. in his capacity as Chairman of the Council. A copy of the report is placed at Annexure XIII.

**(B) MATTER FOR DECISION**

- 1) Revised scheme and physical facilities for two-year full time MBA course and 3-year part-time post-graduate diploma course in Management

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The Scheme for MBA Course has been revised periodically keeping in view the latest developments in management education in respect of content of techniques of training. The Scheme was last revised in 1972 to formulate schedule of physical facilities required for higher intakes of 30, 60 and 90 both for full-time and part-time courses. In 1977, the Board appointed a Committee to review the Scheme in the light of further advances in the field. The revised

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scheme, as approved by the Board at its meeting held on 27.9.78 is placed at Annexure XIV.

11) Correspondence Course in Management Studies.

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While considering the report of the All India Management Association for organising correspondence course in management studies, the Board at its meeting held on 12.12.77 suggested that selected well developed university departments might be engaged to start correspondence course in specific areas of management studies on the basis of a working paper to be prepared by the Secretary, UGC. The Board at its meeting held on 1.4.78 appointed a Committee to examine the desirability and feasibility of starting correspondence courses in specific areas of management studies. The report of the Committee was approved by the Board at its meeting held on 17.4.79. A copy of the report may be seen at Annexure XV.

11i) Scheme of Foremanship and Supervision Course.

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The Management Board at its meeting held in 1975, suggested that the scheme of Foremanship and Supervision Course framed earlier in 1960 should be examined and revised in the light of the recent developments in the Foremanship and Supervision Course. In consultation with the All India Board of Technical Education a Joint Committee of All India Board of Technical Education and All India Board of Management Studies was constituted for better impact of the scheme of larger scale as an inhouse programme in the public and private undertakings. The Committee examined the scheme and syllabus which were framed long ago. The course was revised and made up-to-date to meet present requirements. The Committee was of the view that normally this course should be conducted as an inservice training programme as an obligation on the part of the industrial establishments and, therefore, they should themselves meet the expenditure in organising and conducting these courses. A copy of the report alongwith updated syllabus, as approved by the Board at its meeting held on 17.4.79 is placed at Annexure XVI.

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**II. ALL INDIA BOARD OF POST-GRADUATE ENGINEERING  
STUDIES & RESEARCH**

**(A) MATTER FOR REPORT**

**1) Enhancement of the value of scholarships/  
fellowships**

The high-power Review Committee on Postgraduate Engineering and Research in Engineering & Technology has submitted its report to the Govt. and the same is under consideration. Main recommendations of the Committee have been reported under item No.17.

The Committee inter alia has recommended revision in the rates of scholarships and fellowships for M.Tech. and Ph.D degree courses in Engineering technology which are under consideration of the Central Government. Pending this decision the Central Government has, however, agreed to the revision of the rates of Postgraduate scholarships and fellowships in the IITs as an interim measure with effect from 1st November, 1980 as given below:

**(a) M.E./M.Tech.**

<u>Present value</u>	<u>Revised value</u>
Rs.400 per month	Rs.600 per month

**(b) Ph.D. Research in Basic Sciences or Engineering and Technology after Postgraduate Degree or equivalent qualification in Science or Bachelor Degree in Engineering or Technology.**

	<u>Present value</u>	<u>Revised value</u>
1st and 2nd year	Rs.400 per month	Rs.700 per month
3rd year onwards,	Rs.500 per month	Rs.800 per month

**(c) Ph.D. Research in Engineering and Technology after Master of Engineering or Technology.**

	<u>Present value</u>	<u>Revised value</u>
1st and 2nd year	Rs.500 per month	Rs.700 per month
3rd and 4th year	Rs.600 per month	Rs.800 per month

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The Central Government has also agreed to the enhancement of the Postgraduate fellowships for approved postgraduate courses from the present value of Rs.400 per month to Rs.600 per month with effect from 1.11.1980 in other engineering colleges.

ii) New Postgraduate courses approved

Following Postgraduate courses have been approved:

<u>Name of the Institution</u>	<u>Courses approved</u>	<u>Intake</u>
(a) Guru Ran Das Postgraduate School of Plg., Amritsar.	Master's degree course in City and Regional Planning.	10
(b) Visvesvaraya Regional Engg. College, Nagpur.	Conversion of the existing part-time Postgraduate course in Ferro-Alloy Technology into a Postgraduate degree course.	5
(c) Maulana Azad College of Technology, Bhopal.	Post-Graduate course in Stress & Vibration Analysis in Machinery and Structures.	10
(d) Regional Engg. College, Rourkela-769008 (Orissa)	Post-graduate Courses in Chemical Engineering in the College, in speciality of Coal Chemicals & Fertilisers.	10

iii) Review and Monitoring of Postgraduate courses

The Board recommended that Expert Committee visiting institutions to consider proposals for introduction of postgraduate courses should invariably review the existing postgraduate programmes and briefly comment upon them.

The Board has also recommended that there should be a continuous feed-back to the Postgraduate Board in respect of newly introduced courses, particularly during the first three years with special reference to their viability, popularity etc. The Board felt that it is necessary to have a similar monitoring in respect of Postgraduate course on a continuing basis.

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### III. ALL INDIA BOARD OF TECHNICIAN EDUCATION

#### (A) MATTER FOR REPORT

Since the last meeting of the Council, the Board held three meetings on 16.12.78, 16.4.79 and 28.4.80 respectively.

All India Board of Management Studies forwarded a scheme of the foremanship and supervision course for consideration by the Board. The Board constituted a Joint Committee of All India Board of Management Studies and All India Board of Technician Education under the Chairmanship of Prof. G. R. Damodaran to examine the scheme for better impact on larger scale as an inhouse programme in the public and private undertakings. A report of the Committee along with the revised and up-dated scheme and syllabus has been forwarded to the All India Board of Management Studies. The report has been placed by that Board separately.

#### (B) MATTER FOR DECISION

- 1) Report of the Expert Committee constituted to consider the duration of diploma courses: (Annexure XVII).
- 11) Report of the Committee constituted to consider the question of vertical mobility of the secondary school passed out students under 10 + 2 vocational stream: (Annexure XVIII).
- 111) Report of the Expert Committee set up by Eastern Regional Committee on re-organizing and re-structuring of diploma courses in engineering: (Annexure XIX).

At the Fourth meeting of the All India Board of Technician Education held on 24th November, 1977, a question was raised:-

- 1) Whether entry qualification should be a pass in the 10th standard or a pass in the 12th standard.
- 11) Whether the polytechnic course should be of 3-year duration or 4-year duration.

The Board appointed an Expert Committee to re-examine the duration of technician course under the Chairmanship of Shri M. S. Padmanabhan. The report

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prepared by the Committee was placed before the 6th meeting of the Board held on 16th April, 1979 along with the report of the Committee constituted to consider the question of vertical mobility of the secondary school passed out students under 10 + 2 vocational stream and Report of the Expert Committee set up by Eastern Regional Committee on re-organising and re-structuring of diploma courses in engineering.

Approving the general pattern of 3-year diploma course after 10 year of schooling as earlier approved by All India Council for Technical Education, the Board approved the report of the Padmanabhan Committee with the following observations:

- 1) Those that undertake the ITI courses and + 2 vocational courses are trained to join the work force. If those that pass out of their ITI or + 2 vocational course undertake higher studies soon after passing, the effort put in at the ITI or vocational course, as the case may be, would become wasteful. Therefore, it may be desirable to stipulate certain minimum experience in the trade/profession for ITI passed/+ 2 vocational course passed students before they are admitted for the diploma course.
- ii) It is also preferable to admit the ITI passed/+ 2 vocational course passed candidates in the part-time evening or other non-formal programmes rather than in the regular day-time programme.
- iii) It would not be necessary to specify the duration of the course. The stipulation now proposed and recommended would be only a stipulation on attaining a grade/competency/standard in Technician Education or earning of certain amount of credits. Depending upon the background of the students and the nature of the course that he chooses to undergo, he may take 3 year or less or more, as the case may be. Normally a + 2 vocational student will be taken into special courses and not in conventional courses as he has already taken a course in a specialised field.

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Item No. 9 : REGIONAL COMMITTEES

(A) Matters for Report

I. NORTHERN REGIONAL COMMITTEE

1. The 24th Meeting of the AICTE was held on the 17th February, 1978 at New Delhi. Since then the Northern Regional Committee has met 5 times i.e. on 4th November, 1978, 8th September, 1979, 5th August, 1980, 15th January, 1981 and 10th March, 1981.

2. Reconstitution of the Northern Regional Committee for a period of three years with effect from 15th February, 1980

The Northern Regional Committee has been reconstituted for its fresh term of three years commencing from 15th February, 1980. Membership of the reconstituted Regional Committee is reported under Item No.5 of the Agenda.

II. SOUTHERN REGIONAL COMMITTEE

1. Since the last meeting of the AICTE, five meetings of the Southern Regional Committee have been held on 7.10.1978, 24.1.1979, 26.9.1979, 19.8.1980 and 12.3.1981.

2. Reconstitution of the Southern Regional Committee for a period of three years with effect from 30.10.1979

The Southern Regional Committee has been reconstituted for its fresh term of three years commencing from 30.10.1979. The list of the members of the SRC has been reported under Item No.5.

### 3. Integration of Practical Training with the first degree course in Engineering & Technology

The Southern Regional Committee at its 51st meeting held on 12th March, 1981 endorsed the programme of integration of Practical Training with the first degree course in Engineering and Technology and recommended that the various academic bodies in charge of the institution like the Universities may work out the mechanism for implementation of the programme.

### III. EASTERN REGIONAL COMMITTEE

1. Since the last meeting of the Committee, three meetings of the Eastern Regional Committee were held on 21st November, 1979, 1st August, 1979 and 23rd April, 1980.

2. Reconstitution of the Eastern Regional Committee for a new term from 1st April, 1980.

The Eastern Regional Committee has recommended for the first time a new scheme of Practical Training for the first degree course in Engineering and Technology. The Committee is also working on the implementation of the scheme.

3. Practical Training

The Committee has now an approved scheme of Practical Training for the first degree course in Engineering and Technology. The scheme is being implemented in the various institutions according to their respective capabilities.

4. Assessment of Institutions - Evaluation of Teachers

The Committee reiterated its earlier resolution that the Expert Committee set up by the ERC should continue to evaluate the teachers of the technical institutions while making an overall assessment of the said institutions. The report on assessment of teachers should be confidentially preserved and should be made available only to the Principals of the institutions and the State Government concerned.

5. Book Bank

The Expert Committee has recommended that the State Government should request all to continue to provide for all the technical institutions a part of a running expenditure.

6. Alteration of the forms of institutional assessment

The Principal Committee of the forms of institutional assessment should be altered to suit the needs of the institutions and the State Government.

7. Revision of a course of study

The Expert Committee has recommended that the State Government should revise the course of study for the Marine Fisheries and Fish Processing. The scheme has been circulated to all the concerned departments.

Region. Orissa School of Engineering, Cuttack has started the diploma course in Fisheries Technology on the basis of this recommendation.

### 8. Wastages in Technical Institutions

The ERC approved the report on the wastage in technical institutions at degree and diploma level and suggested remedial measures.

## III. WESTERN REGIONAL COMMITTEE

1. The Western Regional Committee held 4 meetings on 23th November, 1977, 22nd September, 1979, 20th August, 1980 and 17th January, 1981.

2. Reconstitution of the Western Regional Committee for a period of three years commencing from 1.10.1980

The Western Regional Committee has been reconstituted for its fresh term of three years commencing from 1.10.1980. The list of the members on the reconstituted Committee has been reported under the item of the agenda.

3. Revision of grant-in-aid order of State Govts. to meet the current deficit in recurring expenditure of all engineering institutions.

The Committee recommended that the State Governments in the region be requested to modify the existing grant-in-aid order to be in accordance with the Principles enunciated by the AIUE.

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4. Quality Improvement Programme of the Government of India

The Regional Committee emphasised that the efforts should be made to improve the training facilities available in public and private sectors for teachers and students of technical institutions and the training offered under the programme should be matched so that the training can be improved on the basis of experience. The Committee noted that the Indian Society for Technical Education has taken up the work of evaluating the Quality Improvement Programme which includes short-term training of teachers and students.

5. Recommendation of the Education Committee of Parliament

The Regional Committee for Central State Universities and State Councils, India, has been constituted to look into the work of the institutions of higher learning.

The Committee has been constituted to look into the work of the institutions of higher learning and to report to the Government of India.

The Committee has been constituted to look into the work of the institutions of higher learning and to report to the Government of India.

6. Conference of the States of the Indian Union

The Regional Committee is of the opinion that the AICTE should be made

'Statutory Body' so that the recommendations made by this Apex body are implemented well in time.

Note:- This issue is being considered by the AICTE under Item No.20 of the Agenda.

## II. SOUTHERN REGIONAL COMMITTEE

1. The Regional Committee endorsed the following points made by its Chairman, Dr.T. Thimmaiah at its 51st meeting held on 12.3.1981 :-

- (i) Proposals regarding schemes of development of Technical Education duly sponsored by the State Governments in the Region should be considered by the Regional Committee or the merits of the case. There should be no bar on the Regional Committee to consider these proposals at the first instance and express their views. After the development programmes have been duly considered by the Regional Committee the parent body namely the All India Council for Technical Education and the Government of India in the Ministry of Education may take appropriate action on these recommendations. Since these development projects which inter-alia include financial provisions and commitments, are to go through many stages of processing - namely through the forum of All India Council for Technical Education and action finally to be approved by the Ministry of Education, the process of consideration of a development programme should not be barred in the first stage itself at the Regional Committee's level.
- (ii) The development proposals duly sponsored by the State Governments of the Region should be sympathetically

considered by the All India Council for Technical Education and the Ministry of Education. The All India Council for Technical Education and the Ministry of Education should take appropriate corrective action with regard to the irregular growth of private institutions started on the basis of donations and capitation fees.

- (iii) The Chairman reiterated his idea for making the AICTE and its Regional Committees as statutory organizations in order that these forums could guide in the orderly growth of both qualitative and quantitative technical education in the country. He emphasized the fact that the standards of Technical Education in the country are to be raised to be comparable to the leading countries of the world.

Point:- Point No. (iii) is hereby considered by the AICTE as a matter of fact.

### III.

#### RECOMMENDATIONS OF THE AICTE

1. Revision of salary scales of Technical Education Institutions as follows:-

The AICTE noted that the Government of Bihar had adopted the national pay scale (I) for the Technical Education Institutions. It was suggested that the Government of Bihar should also adopt the same in the Technical Education.

The AICTE resolved that the AICTE should be requested to recommend the salary scales for the Principals of Technical Education by the respective State Governments.

2. Proposal for revival of original scheme of the Ministry for teachers fellows under Technical Teachers Training Programme for Engineering Colleges.

The ERC recommended for revival of original scheme for teacher fellows under TTT Programme for Engineering Colleges. The ERC recommended that the number of Fellowships should depend upon the number of vacancies of Lecturers within a specified period that the amount of Fellowships may be fixed at Rs.600/- in the first year and Rs.700/- in the second year. The normal duration of the fellowships should be two years and may be extended by one year, if recommended. Candidates with uniformly good academic record and a first class Bachelor's degree in Engineering/Technology should be recruited as 'Teacher Fellows' by the institute itself. During the period of two years of Teachers Fellowship, the teacher fellows will be attached to the experienced teachers of the institution in the respective department to assist them in the classrooms, tutorials and laboratories and thereby learn teaching techniques. They will be required to participate in a limited amount of teaching to the extent - they will be capable of. During this period the teacher fellows will obtain a Master's Degree in one branch of Engineering/Technology. Wherever facilities for M.Tech. courses are available for the Engineering College itself, the teacher fellows will go for the M.Tech. course in the same institution. But when the appointing institution has no facility for M.Tech. course in respective branch of Engineering/Technology - the teacher fellow shall be sponsored for M.Tech. course in some other institution. The Regional Committee strongly felt that the institution of this programme will solve the problem of shortage of teachers in the Engineering Colleges.

It may be reported here that many Engineering Colleges including Regional Engineering Colleges have introduced the Scheme of Teacher Fellows.

### 3. Revival of old funding pattern

The ERC recommended that the old funding pattern as was in practice upto the end of the Third Plan may be revived.

### 4. Reorganisation and Re-structuring of diploma courses in Engineering as a sequel for a-adoption of 10+2 system as a secondary Education system

The ERC approved of the Report of the Expert Committee on re-organisation and re-structuring of Engineering Education at diploma level. The Committee recommended for integrated Practical Training as a part of the diploma course itself.

### 5. Qualifications to be prescribed for the post of Principal in the Engineering Colleges

The ERC recommended the following qualifications to be prescribed for the post of 'Principal' in the Engineering Colleges :

- (1) A Doctorate First Class Master's Degree in Engineering or Technology or a recognised University or equivalent qualification preferably in a branch of Engineering or Technology in which courses are offered by the Engineering College.

Note:- In the case of Institutions where no class is awarded a Master's Degree with atleast 60% marks in aggregate will be considered equivalent to a First Class Master's Degree.

- (ii) Twelve years experience in teaching/research industry including seven years experience in teaching/research in an institution of university standard and three years administrative experience, relaxable for candidates possessing exceptionally high academic qualifications.
- (iii) Special knowledge in one or more subjects in any branch of Engineering/Technology.

Desirable

- a) Research publications
- b) Experience in guiding research.
- c) Experience of education administration in and Engineering institution of University standard.
- d) Corporate Membership of Professional Institution.

Age: Upper age limit is 55 years.

6. Duration of Post B.Sc. B.Tech. Courses in Engineering/Technology.

The Calcutta University, Jadavpur University and ISI, Dharwad in the Eastern Region offer Post B.Sc. B.Tech. in Engineering/Technology. After the introduction of three years B.Sc. (Hons) Course

which is the admission qualification for the B.Tech. courses mentioned above, years required for a candidate to obtain the B.Tech. Degree is six years after (10+2) H.S. Examination whereas the duration of First Degree Course in Engineering in an Engineering College is four years after 10+2 stage.

On a reference made by the Calcutta University, the ERC resolved that the matter should be examined by the AICTE on a national basis.

7. Indiscipline in Engineering Education

Shri A.L. Mudaliar, Chairman, ERC suggested that a High Power Committee be constituted by the Centre to look in to all aspects of indiscipline in educational institutions all over the country - to recommend specific action plan..

8. Conferring Statutory Status to the AICTE.

The National Body like AICTE should have the statutory power of accreditation as enjoyed by the Indian Council of Medical Research or the Bar Council of India.

9. Technical Audit

The Chairman in his inaugural speech posed a question as to whether or not any audit as to efficiency of expenditure during the funds that do flow in or not efficiently the buildings and equipment etc. installed and how use of infrastructure successful have been in motivating and getting the best out of the teaching staff who are already on the rolls. He also asked the Committee to

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consider whether there is a case for greater devolution of both authority and responsibility to our technical institutions. Time has surely come, he said, to take stock, to monitor and to evaluate the performance of our technical institutions. The members agreed unanimously to have a regular system of Technical Audit over the country.

The matter may be placed before the AICTE for formulating all India guidelines.

#### IV. WESTERN REGIONAL COMMITTEE

##### 1. Quality Improvement Program

The Committee resolved to recommend the AICTE that the Government should take steps to improve the quality of technical education by the following measures:

##### 2. Uniformity of Passes of the in the various branches of the Technical Education

The Committee recommended that the Government should take steps to improve the quality of technical education by the following measures:

It was the unanimous view of the Committee that the Government of India should take steps to improve the quality of technical education by the following measures:



assistance be adopted for the next five years to enable the State Governments to adopt the uniform pattern. It was considered that this would improve the performance of teachers of diploma institutions and bring credibility to Polytechnic Education and also prevent the loss of well trained faculty which would otherwise be the case and also enable new talent to be attracted towards the Polytechnic faculties."

The Committee was of the opinion that the subject matter had a far reaching impact on the general service conditions of teachers in Polytechnics vis-a-vis those in other institutions in the country.

The Committee resolved to forward the proposal of the Director of Technical Education initially to the AICTE for its due consideration and guidance.

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Item No. 10      To report the revised composition  
of the Advisory Committee for  
Regional Engineering Colleges.

On the recommendation of the All India Council for Technical Education made at its meeting held on 21st May, 1976, the Advisory Committee for the Regional Engineering Colleges was constituted to advise the Union Education Minister on all policy matters and to lay down the guidelines in respect of these Colleges. The composition of the Advisory Committee for these Colleges as recommended by the Council may be seen at Annexure-XX.

From the constitution, it will be seen that at any point of time, 12 Regional Engineering Colleges, who had reconstituted their Board of Governors according to the revised constitution, could be represented on the Advisory Committee either by its Chairman, or Principal, or a Professor. At the time of constituting the Advisory Committee three Colleges viz. Srinagar (Northern Region), Tiruchirapalli (Southern Region) and Silchar (Eastern Region) were left out of the Advisory Committee. These three Colleges have also reconstituted their Board of Governors according to the revised constitution and have been pressing for being represented on the Advisory Committee. The matter was considered by the Advisory Committee at its last meeting held on the 24th April, 1979 and the Committee was of the unanimous opinion that at any point of time, all the Regional Engineering Colleges should be represented on this Committee. The Committee accordingly decided that its constitution should be so revised as to include the representatives of the remaining three Colleges. The Committee further decided that the manner in which the representation be allocated between the Chairman, Principals and Professors of Regional Engineering Colleges should be left to the Chairman of Advisory Committee.

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In pursuance of the above recommendation of the Advisory Committee for Regional Engineering Colleges, revised composition of the Advisory Committee has been approved by the Union Education Minister in his capacity as the Chairman of the Advisory Committee which may be seen at Annexure-XXI. The revised constitution included the Principals of all the 15 Regional Engineering Colleges as members of the Advisory Committee which would ensure the representation of all the Colleges.

The matter is reported to the Council.

Item No.11: To Report the revised qualifications prescribed for the various teaching positions in engineering colleges and technological institutions.

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The All India Council for Technical Education at its meeting held on 17th May, 1974, recommended that the revised scales announced by the Central Government for teachers in universities and colleges should be made applicable to teachers in technical institutions. The Council, however, felt that before implementing the decision on the revised pay scales for teachers in technical institutions, the details of qualifications, experience and other requirements prescribed for various categories of teaching posts in technical institutions should be examined vis-a-vis those recommended by University Grants Commission for teachers in universities and colleges for whom the revised pay scales are applicable.

In pursuance of the recommendations, the matter was examined by a Special Committee appointed by the Chairman, All India Council for Technical Education. The Special Committee was headed by Dr. I.D. Nag Chaudhuri, former Vice-Chancellor of Jawaharlal Nehru University, New Delhi. The Special Committee recommended certain minimum qualifications for various teaching positions in engineering colleges and technological institutions for implementation of the revised scales, which may be seen at Annexure XXII. These qualifications were made a pre-requisite for implementing revised scales of pay and the State Governments were informed accordingly.

The qualifications thus prescribed related only to the teaching posts in engineering colleges and did not make any recommendation about corresponding positions in the architectural institutions. Further the Estimates Committee of the Lok Sabha in its Ninth Report on Higher Technical Education observed that the qualifications prescribed for recruitment to the posts of lecturers in engineering colleges were First Class Master Degrees in appropriate field with two years industrial/research experience. The Committee felt that under the qualifications prescribed for recruitment to the posts of lecturers in engineering colleges, it should be laid down as to what post would attract industrial experience or research experience so that the candidates having industrial background are recruited for certain posts and their teaching has a practical bias. The Committee also

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noted that in the qualifications for senior faculty positions, like Professors, Assistant Professors no industrial experience was prescribed. The Committee recommended that the rules should normally lay down that industrial experience for a certain minimum period of five years or more as an essential condition for a candidate to be considered for appointment as Assistant Professor/Professor.

The question of prescribing appropriate qualifications at different levels was, therefore, again examined in the Ministry. The University Grants Commission also examined this question and set up an Expert Committee to suggest minimum qualifications for appointment to the teaching positions of lecturers, assistant professors and professors in the faculty of engineering and technology. In the light of the recommendations made by the Expert Committee of the University Grants Commission, the Union Education Minister in his capacity as Chairman, All India Council for Technical Education approved the revised qualifications for teaching positions in engineering colleges and technological Institutions, which may be seen at Annexure-XXIII.

It will be observed that in the revised qualifications now prescribed, besides master's degree in appropriate field of engineering technology, one year's relevant professional experience outside academic/research institutions has been stipulated as an essential requirement. Also for the posts of Assistant professors provision has been made for recruitment of persons from industry or professional fields. The candidates from these fields should possess only good academic record with recognised professional work of about 7 years which should include innovation and/or research development. Similarly, for the post of professors provision has been made for recruitment of outstanding engineers/technologists from the field with established reputation who may have made significant contribution to knowledge. The revised qualifications also spell out the requirements to be fulfilled for recruitment to the different teaching positions in architectural institutions.

The matter is reported to the Council.

**Item No.12 :** To report on the recommendations made by Workshop held at Indian Institute of Technology, Bombay, in August, 1978 on the functioning of the Curriculum Development Centres for Polytechnic Courses.

Under the Quality Improvement Programme, 51 Curriculum Development Centres were set up at the 51 Indian Institutes of Technology and the University of Roorkee in the year 1971 for the development of curriculum and laboratory improvements in various subjects. In the year 1979, another Centre was established at the Indian Institute of Science, Bangalore. While reviewing the progress of the scheme of Quality Improvement Programme, the All India Council for Technical Education at its meeting held in May, 1976 noted that the work done by the Curriculum Development Centres for polytechnics had been appreciated by the State Boards of Technical Education and recommended that the ceiling for each centre be raised from Rs.1.5 lakhs to Rs.2.5 lakhs per year. With regard to Curriculum Development Centres at the degree level, no such recommendation was made by the All India Council.

In order to have a overall assessment of the performance of the Curriculum Development Centres at degree level and to bring out their achievements and to improve them to ensure a well-coordinated approach to the various aspects of curriculum development activities, a Workshop was organised at Indian Institute of Technology, Bombay, in August, 1978. The Workshop was attended by the Coordinators of the various Curriculum Development Centres for polytechnics and Technical Degree and Diploma Institutes, selected persons from industry and officers from the Ministry. In the light of the detailed examination of the various aspects and the discussion that took place during the four days of the Workshop, a number of recommendations were made which are given in the Report on the Workshop placed at Annexure XXV. The main recommendations in the Report are summarised as below:-

**(a) Specific activities for Curriculum Development Centres**

The Curriculum Development Process should involve four clearly identified steps - (i) Curriculum Design, (ii) Curriculum Development, (iii) Curriculum Implementation, and (iv) Curriculum Evaluation. Keeping in view these broad components of the process, the Workshop recommended that the specific activities which could be undertaken by the Curriculum Development Centres may be identified as follows:-

1. Development of model curricula
2. Development of resource materials like textbooks, monographs, laboratory manuals,

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audio-visual aids etc.

3. Providing suitable laboratory experiences
4. Development of instructional methods/teaching learning processes.
5. Development of evaluation methods to gauge the effectiveness of Curriculum.
6. Promotion of interaction between industry, research establishments and educational institutions (included in this are: methodology of Industrial training, identification of R & D Problems for project work, continuing education programmes for persons working in industries etc.
7. Examination reforms.
8. Faculty Improvement Programmes.

The details of these activities and the manner in which the same should be carried out is explained in the Report.

#### (v) Structure of Curriculum Development Centres

- i) Staff: In order that the task assigned to the Curriculum Development Centres could be carried out effectively, the Workshop recommended that each Centre should have full complement of staff comprising of one Professor, 2 Associate Professors and 3 Research Assistants. The existing staff of one Professor, 2 Associate Professors and 2 Research Assistants. The Workshop also recommended additional supporting staff, necessary stipend/honoraria to the Visiting Faculty and provision for other incidental expenditure. The recommendation of the Workshop involve an increase of the ceiling for each Centre from Rs.1.5 lakhs to Rs.2.5 lakhs.
- ii) Advisory Body for each Centre : In order to promote involvement of user concerned colleges/technological institutions, closer interaction with industry and to take into account the local, regional and national requirements as well as other felt needs for the formulation of the curriculum, each Curriculum Development Centre should have an Advisory Body which may consist of the following members:

Director/Vice-Chancellor of the Institution where Curriculum Development Centre is set up or his nominee.	Chairman
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**CDC Coordinator if the nominee of the Director or Vice-Chancellor is different.**

**Director of Technical Education of these State where the CDC is located.**

**Two Directors of Technical Education of the neighbouring States.**

**Two Senate Members.**

**Two representatives of the Regional Engineerings/Engineering Colleges.**

**Two Deans from neighbouring Universities.**

**Two representatives from Universities in the State of Technical Education.**

- 1) **Chairman:** In order to carry out the functions of the CDC, the Chairman will be assisted by a Secretary, who will be responsible for the work of the CDC. The Secretary will be responsible for coordinating the work of the CDC and will be responsible for the administration of the CDC. The Secretary will be responsible for the coordination of the work of the CDC and will be responsible for the administration of the CDC. The Secretary will be responsible for the coordination of the work of the CDC and will be responsible for the administration of the CDC.

**Technical Advisor (1)                      Chairman**

**Chairman/Coordinator of all  
Centres**

**Technical Advisor (to  
Regional Advisor)**

**Four representatives from the  
State/Regional/Engineering Colleges  
(to be selected after consultation)**

**Dy. Technical Advisor (2)                      Secretary  
co-ordinate with DT.**

The recommendations of the World Bank are being considered by the Government. As a result, the Government is considering the development of a new Government College in the State. The Government is considering the development of a new Government College in the State. The Government is considering the development of a new Government College in the State. The Government is considering the development of a new Government College in the State.

Centre from Rs.1.5 lakhs to Rs.2.00 lakhs per year as against Rs.2.5 lakhs, which was recommended by the Workshop. In the revised sanction adequate provision has been made for honorarium and TA/DA for visiting specialists/faculties whose contribution is essential to make the curriculum live and dynamic to be responsive to the felt needs of industries and all others concerned. The Government has also approved the appointment of an Apex Body for monitoring and evaluation of the Curriculum Development Centres. The Committee shall advise the Government to optimise the curriculum development effort in the field of technical education. The composition of this National Committee has, however, been slightly modified to allow also the representation of professional societies engaged in technical education. The modified composition as approved by the Government, is given as below:-

Educational Adviser (Tech) Chairman

Chairman/Coordinators of  
all Centres

Two persons from industry  
(to be rotated every year)

Two representatives from the  
Universities/colleges not  
having Curriculum Development  
Centres

A representative of Institution  
of Engineers (India)

A representative of the Indian  
Society for Technical Education

Deputy Educational Adviser (T) in charge of  
concerned with Quality Improvement  
Programme.

In so far as the revised activities as recommended by the Workshop for evolution of the work of the Curriculum Development Centres are concerned, the composition of the advisory body at each Centre, it was felt that the same may be considered by the Apex Body in the first instance before the work

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approved for implementation by the individual Centres. The Apex Body is accordingly expected to examine these recommendations further. The recommendations of the Apex Body in this behalf will be placed before the Union Education Minister, in his capacity as Chairman, All India Council for Technical Education when the same are made available.

The matter is reported to the Council.

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Item No. 13:- To report about Sixth Five-Year Plan of Technical Education.

In the development of technical education each five year plan was characterized by major stress on certain specific aspects. Up to the end of the Third Plan, the main emphasis was on physical expansion of facilities for technical education. During the Fourth and Fifth Five-Year Plans, the emphasis shifted from physical expansion to consolidation and improvement of quality, and to new fields of technical education. However, in all the Plans efforts were made to ensure that the technical education system was able to respond to both short-term and long-term needs. The technological capability of a nation is such an important factor for the economic growth and development of a country and training of scientific and technological personnel in a wide range of relevant fields or areas in technology has to be regarded as areas of high priority in economic planning. Investment in infrastructure of facilities for creating in the country a technical cadre of talent, computer, electronic, and other specialized fields, is a major task in the development of technical education. In the Fifth Five-Year Plan, the government has set a target of 50,000 graduates at the diploma level courses, 25,000 at the undergraduate level courses, and 10,000 for postgraduate studies in various fields of engineering and technology. It also aims to further develop the country's scientific and technological resources in order to meet the needs of the country in industry and agriculture for modern technology, planning, and other areas.

The problem of maintaining the quality of the  
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facilities like v created and - ro - in the  
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major - l - l - - - - -  
According - - - - - the Sixth Plan - - - - - the main  
on - - - - - would be on the following aspects:

- (1) to make a more optimum use of the available facilities.

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- (ii) identification of critical areas and creation of necessary facilities for education in emerging technologies in the light of a proper assessment of future manpower requirements;
- (iii) improvement of quality of education; and
- (iv) the furtherance of national efforts to develop and apply science and technology as an instrument for country's socio-economic progress.

The above approach would seek to ensure completion of the development schemes initiated in the earlier plans and to institute new schemes, wherever essential, to realise the objectives set under the Sixth Five-Year Plan. For this purpose, the Ministry of Education had proposed a total outlay of Rs. 216 crores in the Central Sector 101 crores for Continuing Schemes and 115 crores for New Schemes of Technical Education during the Sixth Plan period. The planning Commission, however, approved only an outlay of Rs. 99.25 crores (including Rs. 8.15 crore on account of enhancement of postgraduate scholarship from Rs. 400 to Rs. 600/-) and Rs. 60.75 crores for the New Schemes of Technical Education. The various schemes of Technical Education included in the Sixth Plan period in the Central Sector and the outlay provided for them for the entire plan period as also for 1981-82 is given as below:

Name of the Scheme	Outlay for the Plan Provision five years Plan for 1981-82 1980-85	
	1 (Rs. in lakhs)	2 (Rs. in lakhs)
<b><u>A. CONTINUING SCHEMES</u></b>		
1. Indian Institutes of Technology	3250.00	800.00
2. Regional Engineering Colleges	1100.00	300.00
3. Indian Institutes of Management	600.00	200.00
4. Development of P.G. Courses.	360.00	80.00

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	1	2	3
5. Central Institutes TTTIs, NIFT, SPA, NITIE	540.00	125.00	
6. Apprenticeship Training	100.00	80.00	
7. Programme of Quality Improvement:			
a) Direct Central Assis- -tance	600.00	100.00	
b) Community Polytechnics	200.00	10.00	
8. Management Education	100.00	15.00	
9. Administrative Staff College of India, Hyderabad.	-	-	
10. UGC Schemes.	2775.00	600.00	
	95.00	15.00	

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1. Personnel Movement 100.00  
Innovation cost  
including labor  
Cost in the industry.
2. Expansion of facilities 1000.00  
in process groups  
have already been  
identified such as  
instrumentation, computer  
science, electronics,  
maintenance E.g.  
Bio-Sciences, Management  
Sciences etc.
3. Development of self- 100.00  
reliance in product  
development.

1	2	3
4. New Schemes of Continuing Education.	300.00	)
5. Support to Scientists and programmes to take advantage of advanced facilities created in Technical Institutes.	100.00	)
6. Model project on Correspondence Courses.	25.00	)
7. Creation of necessary facilities to meet requirements in areas of emerging technologies.	2200.00	) 3.16 crores
8. Modernisation of Engg. Labs.	1000.00	)
9. New programmes of Quality Improvement.	300.00	)
10. Institute-Society interaction.	300.00	)
11. TDC programmes.	40.00	)
12. Monitoring and Evaluation.	10.00	)
13. New Scheme under Apprenticeship Training.	100.00	)
Total:	6375.00	

A number of new schemes viz. (i) Institutional Network Scheme under Quality Improvement Programme, (ii) Advanced Technician Course under Continuing Education, (iii) Institution of Distance Education for Polytechnic Teachers and a Continuing Education, (iv) Monitoring and Evaluation Mechanism have already been formulated through the respective Expert Committees or otherwise and are in the process of finalisation in consultation with Planning Commission and Finance for implementing the same during 1981-82. The details



in this behalf have been reported separately under items No. 14. The three other major schemes included in the Sixth Five-Year Plan pertain to (i) strengthening of infrastructure, existing weaknesses have been identified (ii) creation of facilities for meeting requirements in the areas of emerging technologies and (iii) modernisation of laboratories in existing engineering and technical institutions. A National Expert Committee has been set up under the Chairmanship of Shri B. Nag, Secretary (Electronics), Ministry of Energy, with the approval of the Union Education Minister in his capacity as Chairman, All India Council for Technical Education to finalise these schemes and also to promote effective implementation of the same. Another National Expert Committee has been set up under the Chairmanship of Dr. A.S. Chandra, Vice-Chancellor, Punjab Agricultural University, Ludhiana, with the approval of the Union Education Minister in his capacity as Chairman, All India Council for Technical Education for the formulation of schemes for effective integration of technical institutions with society for the solution of social problems. These Expert Committees are directed to complete their assignments in the near future.

The schemes of Technical Education under the State Sector would also have to undergo a process of consolidation, optimum utilisation of existing facilities and improvement of quality and overall co-ordination with some objectives set for the sector under the Central Sector. A call out of Rs. 100 L.C.Rs. 1 lakhs is being made for the schemes under the State Sector (including local authorities) for the entire Sixth Plan period. *State-wise break up may be seen on next page*

The latter is reported to the Government.

\* This amount does not include the amount of Rs. 100 L.C.Rs. 1 lakhs in respect of schemes of technical education included under Central Sector.

The States-wise distribution of the outlay for the Sixth Plan period and the plan Provision made for the year 1981-82 is given as below:

(Rs. in lakhs)

S. No.	Name of the State/ Territory.	Outlay for the Sixth Plan 1980-85.	Plan Provision for 1981-82.
1	2	3	4
<u>I STATES</u>			
1.	Andhra Pradesh	500.00	80.00*
2.	Assam	800.00	150.00
3.	Bihar	950.00	100.00
4.	Gujarat	600.00	120.00
5.	Haryana	225.00	52.00
6.	Himachal Pradesh	60.00	11.00*
7.	Jammu & Kashmir	150.00	30.00
8.	Karnataka	550.00	120.00
9.	Kerala	700.00	190.00
10.	Madhya Pradesh	675.00	110.00*
11.	Maharashtra	1850.00	290.00
12.	Manipur	100.00	18.00
13.	Meghalaya	60.00	15.00*
14.	Nagaland	25.00	8.00*
15.	Orissa	300.00	45.00*
16.	Punjab	380.00	60.00*
17.	Rajasthan	220.00	30.00
18.	Sikkim	-	-

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1	2	3	4
19. Tamil Nadu	1100.00	250.00	
20. Tripura	58.00	12.00	
21. Utter Pradesh	1050.00	170.00	
22. West B'ngal	1700.00	360.00	
I. Total (States)	<u>12173.00</u>	<u>2223.00</u>	
II. <u>UNION TERRITORIES</u>			
23. Andaman & Nicobar Islands.	4.00	1.00*	
24. Arunachal Pradesh	-	-	
25. Chandigarh	270.00	55.00	
26. Dadra & Nagar Haveli	-	-	
27. Delhi	500.00	120.00	
28. Goa, Daman & Diu	260.00	70.00	
29. Lakshadweep	-	-	
30. Mizoram	70.00	10.00*	
31. Pondicherry	18.00	3.00	
II. Total (Union-Territories)	<u>1122.00</u>	<u>269.00</u>	
Total for I.	12173.00	2223.00	
Total for II.	1122.00	269.00	
Grand Total:	<u>13295.00</u>	<u>2492.00</u>	

\* Break up of outlay is estimated.



Item No. 14 : To consider the question of expanding the scope of AICTE to cover the vocational education.

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Vocationalisation of higher secondary education is an essential ingredient of the new pattern of school education. Various committees and groups on school education have recommended that there should be a National Council of Vocational Education. The Working Group on Vocationalisation (1978), which was set up by the Ministry of Education, in consultation with the Planning Commission, under the chairmanship of Union Education Secretary, also considered this issue and observed :

"At present different Vocational Courses are controlled by different Ministries and organisations, statutory or otherwise, having professional control over certain vocations. The Indian Council of Agricultural Research is responsible for agricultural education at university and polytechnic levels; the All India Council for Technical Education at the Centre and the State Boards of Technical Education in the States control Polytechnic education while the Industrial Training Institutes are controlled by the Directorates of Employment and Training in the Ministry of Labour; all the para-medical schools are under the control of statutory councils, such as the Nursing Council, the Pharmacy Council and Dental Council. Since all these organisations are functioning independently there is no co-ordination or cooperation. There is replication of efforts and financial investment. Each of these organisations is functioning in isolation safeguarding its interests jealously even though each is offering education and training for middle level jobs. To avoid the wastage of resources and to bring cooperation and co-ordination among various agencies there must be an Apex Body in a Department of the Government. All other existing statutory and autonomous bodies controlling vocational education should be affiliated to it. As recommended by the All India Council of Technical Education

and endorsed by C.A.E., National Council of Vocational Education should be set up at the Centre with corresponding State Councils in all States. All the agencies imparting vocational education in the fields of para-medical, agriculture and technical etc. shall be affiliated to the State Councils of Vocational Education in the States and to the National Council at the national level. The constitution, membership and its functions have to be worked out in clear terms. These councils should ensure, quality and standard of vocational education, co-ordination and cooperation among all agencies which are at present offering vocational education and those connected with employment."

Keeping in view the above observations, the Working Group ~~inter-alia~~ recommended that the National Council of Vocational Education and State Councils of Vocational Education should be set up without delay and their spheres of action, composition and functions to be performed should be defined. These Councils should ensure quality and standard of vocational education, co-ordination and cooperation among all agencies which are at present offering vocational education and those connected with employment. However, it was not found feasible to set up a National Council of Vocational Education for the present.

This subject was then discussed at Inter-Ministerial meetings, held under the chairmanship of former Union Education Secretary. The consensus reached in these meetings favoured the suggestion that an All India Board of Vocational Education and Training be set up which should function under the aegis of the All India Council for Technical Education to look after the problems of Vocational Education and Training. The matter was further considered at a meeting of the State Secretaries dealing with the departments of technical education and State Directors of Technical Education at a meeting held in Hyderabad

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In June 1979. Having regard to the fact that the vocational courses were controlled by different Ministries and organisations which were functioning independently resulting in duplication of efforts and financial investments, it was agreed that it would be a step in the right direction if an All India Board of Vocational Education and Training is set up under the aegis of the All India Council for Technical Education to look after the problems of Vocational Education and Training. It was felt that the All India Council for Technical Education has enough expertise and experience in coordinating and integrating technical education and training at various levels.

The matter is placed before the Council for consideration.

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Item No.15: To report the assistance extended to the Engineering Colleges and Polytechnics under the Scheme of Direct Central Assistance.

The All India Council for Technical Education at its meeting held in April, 1972, while reviewing the progress of Fourth Plan Schemes noted that the progress of central sector schemes was satisfactory but there was a serious shortfall in regard to the schemes of consolidation of technical institutions and Quality Improvement under the State sector. The Council, therefore, recommended a new funding arrangement under which Centre would finance 100% of Quality Improvement Programme and 50% of the Programmes of Consolidation of existing institutions outside the State sector. This recommendation of the Council could not be implemented as it involved revision of pattern of central assistance for all plan schemes. However, the Planning Commission agreed to the institution of a scheme for Direct Central Assistance to engineering colleges and polytechnics and to the provision of necessary funds for the same. The scheme was accordingly instituted in the year 1976.

The All India Council for Technical Education at its meeting held in May, 1976 while noting the action taken on this recommendation authorised the Chairman to constitute two separate committees for selection of engineering colleges and polytechnics for Direct Central Assistance under the Scheme for the identified projects. Accordingly, two Committees are constituted every year since 1976-77 with the approval of the Union Education Minister, in his capacity as Chairman, All India Council for Technical Education for the selection of engineering colleges and polytechnics for the identified projects relevant and important for improvement of quality and standards of technical education. Over the years, these committees have evolved certain guidelines for the selection of institutions and the identification of the projects suitable for financial assistance under the scheme.

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These guidelines are reviewed every year by the new committees and the guidelines are amended from time to time for the purpose are given below:-

For Degree Institutions:

- (a) Only good department(s) of the institutions would be considered for support under the scheme. The grants would be normally recommended for purchase of special items of equipment not available in the institutions but considered essential for effective functioning of the concerned departments.
- (b) The funds under the Scheme would be provided for special programmes which are important for improvement of standards and quality of technical education. The funds would also be provided for making impact in newer areas which are not covered by the State Schemes but otherwise are crucial in connection with the national needs.
- (c) The total area gaps such as, complete absence of laboratories in the fields of Metrology, Heat Transfer, inter-disciplinary studies, basic electronics, soil mechanics and other such fields where laboratories do not exist in the required manner even in some of the developed institutions would qualify for consideration under the scheme. Similarly, the newer areas which can have direct impact on the quality of technical education and would promote experimentation with innovations, such as, industrial consultancy,

continuing education, research and development for industry, research on problems of technical education, data links with larger Computer Centres and similar other areas would also qualify for consideration support under the scheme.

- (d) The institutional development programmes for less developed engineering colleges/ technological institutions through internal assistance from well developed institutions would be another area eligible for consideration under the Direct Central Assistance Scheme.

For Diploma level Institutions:

- (a) Good departments having capacity to produce better results should be recommended for the purchase of special items of equipment not available in the institutions but considered essential for purpose of effective functioning of the concerned departments.
- (b) The funds under which Scheme should be provided for special programmes which are important for the improvement of standards and quality of technical education.
- (c) The funds should be provided for making impact in newer areas which are not covered in the State plan but otherwise are extremely important on the basis of national needs.
- (d) The total area gaps such as the complete absence of laboratories in the pol. - techniques in the field of Metrology, Instrumentation, Industrial Electronics, Micro-Processors, Environmental Engineering, Appropriate Technology, Sheet Metal Technology, Surface Coating, Soil Mechanics and similar other fields for which laboratories do not exist in a manner as required even in some of the developed polytechnics, would be eligible for consideration of support under the Scheme.

- (e) The new concepts which would have direct impact on improvement of technical education and would promote experimentation with innovations would be entitled for consideration of support under the Scheme. These will include projects such as -

- innovation in classroom technology;
- improvement in laboratory instructions;
- interaction with industry;
- product design and development;
- instructional models and charts;
- resource generation;
- development of rural and small scale industry;
- consultancy and testing services;
- similar other essential fields.

Keeping in view these guidelines, the proposals of the institutions are in the first place examined by the Regional Sub-Committees in which the Regional Officers of the Ministry, the Directors of Technical Education and the Principals of the Technical Teachers' Training Institutes are also associated. Based on the recommendations made at the regional level, the final selection of the institutions as well as projects/areas regarded as relevant in accordance with the objectives of the scheme is made by the National Expert Committees. The recommendations thus made by these committees are approved by the Union Education Minister, in his capacity as Chairman, All India Council for Technical Education and grants are accordingly, released to the institutions concerned.

During the last five years, the following grants were released to the institutions both at the degree and diploma level under the scheme. Until 1978-79, the State Governments were also required to contribute 25% of the total amount towards

their share whereas with effect from 1979-80, the grants are released on 100% under the Scheme of Direct Central Assistance, and the States are not required to contribute any amount.

(figures in lakhs)

44. Years	Degree Institutions	Polytechnics/ Diploma Institu- tions.
1976-77	104.00	45.30
1977-78	48.795	67.80
1978-79	130.935	61.44
1979-80	73.00	57.37
1980-81	205.60	73.40

The details of the institutions selected under the scheme in the past five years, the projects approved for the different institutions and the grants released are given in the statements at annexures XXV and XXVI.

The matter is reported to the Council.

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**Item B.16: To consider model curriculum for four year degree course in engineering.**

The All India Council for Technical Education at its meeting held in May, 1976, recommended that there should be a uniform pattern of four year first degree course in engineering for all engineering colleges and institutions and that the entry to this course should be after 12 years of schooling. However, due to the fact that during the transitional period from 1976-77 to 1980-81 both the 11 year Higher Secondary and 12 year Higher Secondary courses would be in existence, the Council recommended that the engineering colleges/institutions which have at present five year course should continue this programme upto 1980-81. These institutions might make admissions to the five year degree course from both the systems in accordance with the existing procedures. A number of institutions have already switched on to the four year degree course and the others may do so with effect from next academic session 1981-82.

The question of formulation of four year degree course in various branches of engineering has been under consideration for quite sometime. The All India Board of Undergraduate Studies in Engineering and Technology at its meeting held on the 21st September, 1977, decided to prepare guidelines for undergraduate courses in various disciplines and to constitute committees for the purpose. In pursuance of these recommendations, the Chairman of the Board constituted sub-committees on various disciplines including (i) Civil (ii) Mechanical (iii) Electrical (iv) Electronics (v) Textiles (vi) Chemical and (vii) Metallurgy.

In order to facilitate the work of these expert committees, the general overall structure of the undergraduate courses was discussed in the first place by the Conveners of the various sub-Committees. Based on their deliberations, and with the help of the Curriculum Development Centres, the Committee of the Conveners prepared a draft curriculum for the four year degree course in engineering, which was considered by

the All India Board of Undergraduate Studies at its meeting held on the 19th June, 1979. The Board expressed deep appreciation for the thorough work done by the Committee of Conveners and desired that the Committee of Conveners should have another look on the document as the same was to serve as a model for the various universities and institutions in the country.

Programme

As desired by the Undergraduate Board, the document was again taken into by the Committee of Conveners and the Quality Improvement/Coordinators. The document was discussed at great length and based on these deliberations, a revised document was prepared. This document was further considered in the full Sub-Committee, which have since made their final recommendations.

In preparing the general curriculum framework for the four year course, two primary objectives were kept in mind by the Committee which are as follows:-

- (1) To prepare the student for technical and scientific studies that will enable him to pursue professional education.
- (2) To equip the student with a sound background of humanities and social sciences that will be necessary to enable him to play an effective role of an engineer for the benefit of the society.

The first objective is to provide the student with a sound technical background and develop in him the capacity to tackle the engineering problems he will encounter in the course of his professional career. In this context, he should be familiar with the techniques of analysis and synthesis of design and production. The second objective is to



help the student to acquire a sense of good moral and ethical values to bring in him an awareness of his obligations to society. This is necessary in order to become a valuable and useful member of the society in which he has to live and without which engineering education may not be of place.

The Course has been divided into 8 semesters of approximately 16 working weeks each. The course shall be reckoned in units and one unit will represent approximately 80 contact hours. The number of units required to qualify for a Degree will range from 45 to 50 units. The total contact hours during the 8 semesters shall be sub-divided as follows:-

a)	Languages, Humanities, Social Sciences and Introduction to Management	5-10 (3-5 units)
b)	General Basic Sciences	15-25 (7-12 units)
c)	Engineering Sciences and Technical Arts	15-25 (8-12 units)
d)	Professional Subjects	22-27 (27-30 units)

Keeping in view this general overall framework, the respective sub-committees have formulated the curricular framework for their respective branches. The details as finalised by the different committees are given in the booklet which may be seen at appendix-I. The detailed syllabus for the individual subjects will be prepared by the respective sub-committees after the general curriculum framework has been approved.

The matter is placed before the Council for consideration.

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Item No.17: To receive the report of the Review Committee on post-graduate education and research in engineering and technology

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The Review Committee was appointed by the Government of India in June 1978 to review the progress so far made in the country in the area of post-graduate education and research in engineering and technology and to report on all aspects of its further development. The Committee submitted its report to the Government on 21.6.1980. The main recommendations are:-

- 1) While there has been considerable expansion of the system of post-graduate education & research in the country during the past three decades, and it has done quite a lot of good to national development, the shortcomings in the implementation of the recommendations made by the earlier reviews have been responsible for many of its ills today. Post-graduate education & research is a matter of national concern and therefore should get continuous and serious attention on a priority basis. ( 2.1, 2.5, 3.8, 4, 5.1 and 5.2).
- 2) Today the S&T content in the Indian Society and the extent of India's involvement in R&D are very low. The capacity for generating and sustaining technological growth within the country has to be strengthened considerably and vigorous steps taken for the continual improvement of that capacity. This means that the Indian national investment in scientific and technological education and research should increase many fold to meet the growing needs of the changing social system ( 4.1.2, 4.1.5, 4.13.5, 5.4 and 5.6)
- 3) The performance of about half-a-dozen institutions in the area of post-graduate education and research has been quite good mainly because of the deliberate efforts and liberal investments in promoting them. In spite of the considerably lower inputs, about 20 other institutions have also done creditably well. The performance of the remaining 50 or so institutions is poor, even though they also have succeeded in developing certain areas/disciplines well. The physical facilities in many of these institutions are inadequate (3.1 -3.8 and 5.5)

4) For a variety of reasons, it has not been possible to attract sufficiently large number of bright people for post-graduate education. To ensure that only bright and motivated people are admitted to post-graduate courses, admission to these programmes should be restricted to only those who come through GATE, as detailed in this report. The Government should impose requirements on industry and Government departments to sponsor their engineers and technologists for post-graduate education and research in the respective areas of their interest (4.4.3 and 4.14.3)

5) Post-graduate scholarships for ME/M.Tech. should be enhanced from the present value of Rs.400/- p.m. to Rs.600/- p.m. and should be given to all those, who are admitted through the GATE. However, sponsored candidates who are paid by their employers would be eligible to get only 75% of the value of the scholarship.

Fellowships for doctoral aspirants should be raised from the present value of Rs.500/- p.m. to: first year Rs.700/- p.m., second year Rs.800/- p.m. and third year Rs.900/- p.m. The fellowship should be enhanced by Rs.50/- after submission of the thesis and should be continued for 3 more months or till the 'viva' is over, whichever is earlier. Values of all scholarships/fellowships should be revised once every 3 years ( 4.4.3 and 5.9 )

6) The one-year post-graduate diploma courses have not been found to be popular and successful. They need not be offered as regular programmes unless they are specifically asked for and paid for by interested agencies ( 4.2.2, 4.5.1, 4.5.2 and 5.10)

All existing post-graduate degree programmes which are out-dated, stereotyped and unpopular should be wound up. Wherever possible they should be redesigned to include relevant and emerging areas ( 4.4.3, 4.6 and 5.11)

All ME/M.Tech programmes should be of three semesters duration consisting of two semesters course work ( including core and elective subjects) and one semester dissertation work. The concept of joint guides for supervising project/dissertation work should be encouraged. These programmes should be offered in suitable modules with credit system. Post-graduate Curriculum Development Centres should be set up to revise, redesign and update the curricula of post-graduate programmes on a continuing basis.

The curricula should be dynamically designed and should have flexibility to include new ideas and developments as and when necessary ( 3.2, 4.3, 4.5.2, 4.5.3, 5.12 and 5.13)

The minimum duration for doctorate after ME/M.Tech degree should be two years of full-time study and research. In exceptional cases when BEs/B.Techs are admitted directly for doctoral programmes, the minimum duration of the course should be 3 years. All aspirants for doctorate should invariably go through some advanced course relevant to the specific area of research. 'Candidate-based Doctoral Committees' should assess the candidate's competence and identify his deficiencies ( 4.5.5, 4.10.5 and 5.14)

In many emerging areas which are science-based, but heavily technology oriented, there is need to train scientist-technologists who can handle the twin responsibilities of scientific research and innovative application. A separate stream of post-graduate courses of 3 semesters duration after MSc in science should be developed on the pattern of ME/M.TECH programme (4.15.1 - 4.15.4 and 5.15 ).

Under no circumstances should further proliferation of existing programmes in conventional or irrelevant areas be permitted. Neighbouring academic and research institutions should be encouraged not only to conduct post-graduate programmes jointly, but also to share jointly the facilities such as faculty, library, equipment etc. (4.7.1, 4.7.2 and 5.16)

7) Introduction of part-time post-graduate programmes especially in industrialised areas should be encouraged. New techniques and arrangements should be devised for extending high quality post-graduate education to engineers/technologists employed at location remote from established campuses ( 4.16.1 - 4.16.3, 5.17 and 5.18)

The Government and industry should work together within a major national programme of training and retraining of employed engineers and technologists to develop the skills and support needed to implement and sustain new technologies. While assessing staff requirements of institutions, their activities in continuing education programmes should also be taken in account ( 4.17.1, 4.17.5, 5.19 and 5.20)

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8) It is necessary to recognise publicly and to publicise widely that in today's world post-graduate studies at master's degree level are a normal part of basic engineering education. The unreasonably restrictive conception that a bachelor's degree is sufficient preparation for most engineering work should not be perpetuated ( 4.2.1, 4.22 and 5.21)

It should be made mandatory to prescribe post-graduate degree as the minimum qualification for recruitment to many positions in the engineering profession in industry, R & D organisations, Electricity Boards, PWDs, Posts and Telegraphs, Railways etc. The present policy and practice of recruiting graduate engineers at the lowest level ( single point entry) to many services should be discontinued. As an incentive and mark of recognition it should be mandatory to give not less than 2 advance increments whenever post-graduate degree holders are recruited ( 4.2.3 and 5.22 )

The Government should take effective measures to link up all developmental projects and industrial expansion with the requirement of induction of competent post-graduate engineers and technologists into the respective projects. Industrial establishments should be asked to institute regular 'engineering manpower audits' to ensure that they make the best use of these personnel as their key assets. Proper utilisation and deployment of scientific and technical manpower are important ( 4.20.1, 4.20.5, 4.18.5 and 5.23 )

A reliable national information system for the storage , updating, retrieval and analysis of manpower information should be established to assist technical education planning ( 1.4.4, 4.21 and 5.24)

It is necessary to study the employment pattern of post-graduate in industry, Government, education etc. and also to make inter-comparisons regarding their characteristics, attitudes and performance ( 1.4.5 and 5.25 )

9) Next to the student body, the faculty is the most important factor in assuring success of any engineering education programme. Possession of a doctorate degree or equivalent qualification representing an advanced level of intellectual attainment and creative endeavour should be made a pre-requisite for post-graduate teaching. Industrial experience should be proscribed as an essential qualification for recruitment to teaching positions at post-graduate level. All recruitments to teaching positions should be made only on an all-India basis. Mobility and exchange of faculty between academic institutions, R & D organisations and industrial establishments should be encouraged to prevent in-breeding ( 4.8.1 - 4.8.3, 5.26 and 5.27 ).

A rigorous 'staff appraisal scheme' to assess teachers annually should be introduced in every post-graduate institution. Such staff appraisal records should be looked into at every stage of promotion. Suitable merit promotion scheme should be introduced in all institutions ( 4.8.4, 4.8.5 and 5.28 ).

10) It is necessary to create in some of the higher technological institutions an infra-structure for training in the instrumentation area with particular reference to repairs and maintenance of sophisticated equipment. Institutions like IITs should ensure that they are capable of maintaining and repairing their own equipment and those of others in their region. A specialist cadre of maintenance technicians/engineers with proper status and attractive scales of pay should be built up atleast on a regional basis (4.6, 4.9.1, 4.9.6, 5.29 and 5.30).

11) Government should impose requirements on industry as well as on post-graduate institutions to collaborate with each other on the basis of the various suggestions made in this report. The tendency on the part of industry to look to the advanced countries for technical know-how should be discouraged. Tax should be levied on any know-how imported from outside. A research cess should be levied ( if necessary through legislative action ) on each industry. A 133% tax deduction should be allowed on all payments/contributions, investments made by industry to promote post-graduate education and research ( 3.5, 4.3, 4.10, 4.14 and 5.33 ).

12) There is urgent need to take deliberate action to prevent enormous wastage of resources on repetitive and irrelevant research projects. Academic research at all levels should emphasise work done in the context of socio-economic development. The culture of sponsored research projects should be further developed ( 4.10.1 - 4.10.3).

Institutional consultancy should be encouraged and individual consultancy permitted on the basis of pre-determined norms. The money earned from sponsored and consultancy projects should be utilised for further development of the research capability of the institutions ( 4.10.3, 4.10.4, 4.14.3, 5.35 and 5.36).

Multi-disciplinary, trans-disciplinary and trans-organisational research with emphasis on design and development should be encouraged at all levels. Problems of industry should be documented and distributed to post-graduate institutions on a continuing basis. It is recommended that a national level R&D Newsletter should be published regularly giving information on all research projects for the benefit of post-graduate institutions, R&D Organisations and industry. It would be good to organise atleast once every two years an all-India Conference on post-graduate projects and to document them area/discipline-wise ( 4.4, 4.10.4, 4.10.6, 4.14.3 and 5.37 ).

Those institutions which have competence to undertake sponsored research projects on a large scale should be permitted to recruit a core of competent scientific staff on permanent basis with all service benefits ( 4.10.4, 4.11.1, 4.11.2 and 5.38).

13) Immediate action should be taken to revise the norms of funding to provide physical and other facilities in post-graduate institutions on the basis of guidelines suggested in this report. The recommendation of grants for post-graduate programmes should be based on the overall post-graduate activities of the departments concerned and not on a narrow truncated basis of specific post-graduate courses proposed by an institution (4.12.6 and 5.40).

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While it is necessary to undertake in a phased manner the need-based consolidation of all institutions (including modernisation of laboratories and replacement of obsolete equipment), it is strongly recommended that such consolidation be undertaken on a priority basis in those institutions which despite poor funding have proved their merit by their past performance. These institutions should serve as nuclei for technological development in their respective regions. A provision of about Rs.20 crores may be made available for this purpose during the Sixth Plan period ( 1980-85) (4.12.7 and 5.41)

It is imperative that funding post-graduate education and research in engineering and technology in all engineering institutions including University Departments should be a 100% Central Government responsibility and that the existing dichotomies/disparities in funding should be eliminated as suggested in this report ( 4.13.1 - 4.13.6, 4.18.5 and 5.42)

I In the case of institutions of national importance which are to be maintained and further developed as pacesetters, funding should be based on integrated infra-structural development as at present. However, even in their cases assistance to various departments should be performance-based (4.13.7 and 5.43)

Since non-Plan provisions have been approved from 79-80 for meeting the recurring liability in respect of on-going post-graduate programmes, the Central Government should advise the State Governments to extend retirement and other service benefits to post-graduate staff in institutions which are governed by the State Government grant-in-aid rules ( 4.12.5 and 5.44 ).

14) One of the biggest stumbling blocks in the path of scientific and technological research and development in India is the lack of proper data banks and information services. There is immediate need to educate and train information users by introducing user education/training programmes in the post-graduate institutions and Research Centres (4.19.1 - 4.19.3 and 5.45).

India is importing bibliographical data bases along with appropriate software to develop computerised information retrieval system in the country. It is necessary to absorb this imported information technology and develop it further to suit local needs (4.19.4, 4.19.5 and 5.46).

It is strongly recommended that a couple of National Data Centres with all the major data bases of S&T in the form of computer readable magnetic tapes should be established in India as a matter of urgency ( 4.19.6, 4.19.7 and 5.47).

15) This Committee's most important single recommendation linked to many other proposals in various sections in this report is that the Government should make the AICTE/Post-graduate Board a new statutory organisation - a National Authority with powers granted to it by Parliament to advance and promote the technological development of this country by maintaining high standards of engineering and technological education and research. The proposed Authority should optimise the utilisation of all available resources and provide impetus to all the centres engaged in post-graduate programmes and research. Evaluation and accreditation of post-graduate courses should be done atleast once in five years by a suitable national agency ( 4.18.2, 4.18.4 -4.18.7, 4.20.2 and 5.48 - 5.50).

Methods should be developed for the performance-based audit of post-graduate institutions with a view to facilitating comprehensive reviews of their various programmes. The present system of financial expenditure audit should be replaced ( 4.18.8 and 5.51).

16) India has a leading role to play in the new concept of TCDC. In her own interest India should formulate a coherent 'country training policy' for training overseas students in emerging areas of engineering and technology. (4.22.1, 4.22.2 and 5.52).

An Empowered Committee consisting of the Secretaries of the concerned Ministries/Departments was set up to consider the recommendations made by the Review Committee and recommend to the Government the acceptance or otherwise of the various recommendations made. The Empowered Committee has finalised its recommendations and the same are now under the consideration of the Government.

A copy of the report of the Review Committee is placed at Appendix-A.

Item No.18: To consider the guidelines document for the Scheme of Community Polytechnics implemented at the selected Polytechnics.

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On the report of the Working Group on Technical Education, the All India Council for Technical Education at its last meeting held in February, 1978, recommended that selected polytechnics should act as focal points to promote transfer of technology to rural community. Such polytechnics should be designated as community polytechnics and adequate support be provided to them. In pursuance of these recommendations, a National Expert Committee was appointed under the Chairmanship of Prof. G.R. Damodaran, Vice-Chancellor, Madras University with the approval of the Union Education Minister, in his capacity as Chairman, All India Council for Technical Education, to identify the polytechnics which could be designated as community polytechnics and also the activities/projects that may be entrusted to them. Based on the Report of a Workshop held at Coimbatore and the work done by the principals of the four Technical Teachers' Training Institutes, the State Directors of Technical Education and the Regional Officers in accordance with the guidelines laid down at the Coimbatore Workshop, the National Expert Committee selected 30 polytechnics for development as community polytechnics. The National Expert Committee also identified projects that could be entrusted to the different polytechnics. The names of the polytechnics thus selected and the projects entrusted to them are given in the list which may be seen at Annexure-XXVII.

In order to implement these projects, the community polytechnics were given a non-recurring grant of Rs.32.03 lakhs and a recurring grant of Rs.7.88 lakhs during the year 1978-79. Before releasing the grants for 1979-80, the performance of the various polytechnics was reviewed, a series of discussions were also held by way of conferences or otherwise at the regional and at the All-India level of both experts and heads of polytechnics and Technical Teachers' Training Institutes to develop suitable guidelines for the operational plan of action of the various polytechnics in order to get the optimum results. These exercises emerged in fresh guidelines which were issued to the community polytechnics to promote their interaction with the surroundings and effective implementation of the scheme. These guidelines laid emphasis on (a) upgrading the skills of personnel in rural areas, (b) training in different professions/occupations to a group of rural people, (c) technical services in areas of common interest to the

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community, (d) and transfer of technology. In order to enable the polytechnics to promote their activities in accordance with these guidelines, further grants of Rs. 33.20 lakhs for non-recurring and Rs. 16.07 lakhs for recurring was issued to them during the year 1979-80. In the subsequent year i.e. 1980-81, further grants amounting to Rs. 20.96 lakh non-recurring and Rs. 8.25 lakhs for recurring were released to the polytechnics.

Simultaneously, the progress of the community polytechnics was continuously watched and the impact made by them in the different fields was analysed on the basis of the details received from them with reference to the specific areas of activities. Based on this feedback, the Technical Teachers' Training Institute, Bhopal and the Allahabad Polytechnic, Allahabad, which has been one of the leading polytechnics for the rural development work, organised a Workshop of the Principals of all Community Polytechnics and Directors of Technical Education at Allahabad from 2nd to 4th February, 1981. A Working Paper containing detailed guidelines for the Community Polytechnics to accelerate the implementation of the scheme and to deepen the impact in different aspect prepared, keeping in view the previous exercises by the organisers with the help of the various community polytechnics and TTIs was considered at this Conference. During the course of three days deliberations at the conference, various chapters of the document were discussed in detail and necessary modifications made in the light of the suggestions put forth by the principals of the different community polytechnics and other participants. The finalised version of the document is circulated herewith and may be seen at Appendix III.

While laying great emphasis on the role of the community polytechnics as an effective agent of change and important focal point for coordinating efforts of the various agencies involved in rural development the document has spelt out very clearly the activities which may be undertaken by the community polytechnics, the inputs both technical and supporting they can give in the total efforts to meet this great challenge to community development, the manner in which they can promote the much-needed collaboration between various agencies engaged in this task, the different approaches ranging from limited intensive involvement that can be adopted in contributing their share, the techniques necessary to optimise the results of the various efforts, the criteria and quantum of financial assistance necessary for the Community

Polytechnics to implement the scheme meaningfully and the importance of monitoring and evaluation in making the scheme a success. The document has also spelt out in detail the efforts that will have to be put in by the community polytechnics and the help that may have to be extended to promote their efforts by the State and the Central Governments. The important guidelines and major recommendations to achieve the objectives for which the same have been established, are summarised as below:

#### A. GUIDELINES

1) Role of Community Polytechnics: It is envisaged that the Community Polytechnics will provide scientific and technological inputs in a number of areas related to rural development. It is recognised, that, sufficient core-staff should be available to the Community Polytechnics for rural development activities, for effective functioning. The extent and nature of involvement of Community Polytechnics shall depend on the identified needs of the areas and capabilities of the institutions. However, the broad areas of involvement are as follows:-

- i. Conduct of Socio-Economic Surveys, project formulation and preparation of time bound plans of action for integrated rural development.
- ii. Development and transfer of appropriate technology for better productivity and bringing about a qualitative improvement in the life styles of the peoples.
- iii. Vocational training and manpower development for employment generation and entrepreneurial development.
- iv. Technical and other supporting services to provide technological and management support to the socio-economic development in rural areas.
- v. Dissemination of information on new technologies and other rural development activities for creation of a general awareness and consciousness for change.

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2) Pattern of involvement : The following patterns of involvement of Community Polytechnics in rural development activities have emerged.

- i. Limited involvement: Development and conduct of vocational training, programmes, and organisation of technical and other supporting services relevant to the needs of rural areas shall form the broad spectrum of activities under rural development. Initially, all Community Polytechnics shall have limited involvement.
- ii. Intense involvement: This envisages deep involvement of the polytechnic in integrated rural development of one or more villages, intense involvement requires much better rapport, leadership and resources and should be taken up by selected polytechnics.

3) Operational problems: Operational problems include lack of cohesive leadership for involvement of faculty of the Community Polytechnics in rural development activities, frequent transfer of teaching staff, difficulty in recruitment of core staff and operation of funds. Suitable mechanism should be developed to ensure interaction between the core staff, other members of the faculty and students for effective participation of the Polytechnic in rural development activities.

4) Collaboration with other agencies: Rural development is a massive task involving intimate collaboration and co-ordinated action of a large number of government and non-government agencies. Community Polytechnics should function as focal points for providing scientific, technological and management inputs in planning and implementation of rural development projects including village co-operatives and service centres.

#### B. RECOMMENDATIONS

The above guidelines provide a broad framework to the Community Polytechnics for the selection of activities, development of infrastructure and organisation and implementation of its plans. The following recommendations are being made to ensure that the Community Polytechnic movement makes a definite impact on scientific implementation of rural development projects:

## I. Community Polytechnics

- (1) The Community Polytechnics should initiate faculty development programmes in emerging areas to develop necessary expertise and capability for meeting the diverse requirements of rural development activities.
- (2) The Community Polytechnics should involve students in different types of rural development activities through technical service camps, NSS Camps and initiation of rural development projects.
- (3) The Community Polytechnics should actively participate in co-ordination and implementation of rural development activities initiated by State and Central Governments.

## II State Governments

- (1) The State Government should provide additional financial inputs and support to the Community Polytechnics for specific rural development activities.
- (2) The key personnel involved in rural development activities in government institutions should not be subjected to transfer under normal conditions.
- (3) All vacancies in the faculty position in the Community Polytechnic should be regularly filled on a priority basis, so that, the shortage of teaching staff may not hamper development activities.
- (4) There should be sufficient administrative flexibility in functioning of Community Polytechnics, recruitment of core staff and sanction of extra-duty allowance to the Principal and other faculty members involved in rural development work.
- (5) The Community Polytechnics will have to interact with a large number of government and non-government agencies involved in rural development. Therefore, the state government should issue suitable directives to all development departments to facilitate the involvement of Community Polytechnics in rural development activities and for effective utilisation of the specific, technological and management services offered by the Community Polytechnics for rural development projects.

- (6) Rural reconstruction and projects related to rural development and transfer of appropriate technology to rural areas should be included in the curriculum of diploma courses.

### III. Central Government

- (1) Rural Development Department in TTTI: In order to provide guidance to Community Polytechnics in Curriculum Development, faculty development and for providing effective dissemination of information, TTTI should have a separate rural development department. Additional staff may be recruited for the purpose depending upon the extent of involvement of the TTTI in the region.
- (2) Monitoring & Evaluation: A suitable decision mechanism should be developed for evaluating the performance and monitoring the activities of Community Polytechnics. This should be done with the help of Regional Offices and Technical Teachers Training Institute.
- (3) Transition from limited involvement to intense involvement:
  - i) All Polytechnics who have shown good result and have developed capability to undertake intense involvement projects should be asked to do so.
  - ii) For projects requiring intense involvement, faculty of TTI, Regional Officer of the Ministry and the Department of Technical Education of the State should be directly involved.
  - iii) At least one pilot project requiring intense involvement should be adopted in each region and should serve as model to ensure rapid multiplication in other villages.
  - iv) To ensure rapid implementation of integrated rural development schemes the Ministry of Education should assume full responsibility for supporting such schemes and devise an effective system for monitoring such schemes.



(4) Development of Appropriate Technology: A few selected polytechnics should be identified for the development of appropriate technology for which separate grants should be sanctioned on the basis of their capability and performance.

(5) Financial implications

i) For limited involvement in rural development the central assistance should be Rs.1.75 lacs per year recurring and Rs.5.00 lacs non-recurring.

ii) For Polytechnic with intense involvement, the recurring grant should be Rs.3.00 lacs per year, and non-recurring Rs.5.00 lacs.

iii) There should be a lumpsum provision of a revolving fund of Rs.2.00 lacs for Community Polytechnics with intense involvement.

iv) Ministry of Education and the State Government should permit the Community Polytechnics to operate the central assisting through Registered Rural Development Societies and they may be permitted to deposit the amount in C.D.s.

v) Central Government should finance the Community Polytechnics scheme of the basis of 100% Central assistance for the first five years.

(6) Involvement of Senior Officers of the Ministry of Education: Having regard to the importance of the scheme a senior officer in the Ministry of Education should be exclusively made responsible for formulation, monitoring and evaluation of the Community Polytechnic scheme, especially those concerned with intense involvement.

(7) Exemption from Income Tax: The Ministry of Finance may be requested to include Community Polytechnics in the list of institutions organisation to which donation for rural development work will qualify for exemption of income tax.

- (8) **Publicity:** Government publicity media may be requested to provide publicity for Community Polytechnic activities as agencies involved in rural development activities.
- (9) **Study Conference for State Administrators Development Agencies:** For success in this movement, key personnel in the State Government and Directors of Technical Education should develop appreciation of the key points involved in rural reconstruction. Study conferences for such personnel should be organised by the Ministry of Education, Technical Teachers Training Institutes and Indian Society for Technical Education.
- (10) **Closer Collaboration with other Ministries:** Officers responsible for the Community Polytechnics in the Ministry of Education should develop close co-operation at the highest level with the Ministries associated with rural development work.

The matter is placed before the Council.

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**Item No.19: To report on the formulation of the Scheme of Institutional Network between the Indian Institutes of Technology and the Regional Engineering Colleges.**

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During the Second and Third Five-Year Plans considerable emphasis were laid on the expansion of facilities for technical education in the country. As a result, a large number of institutions at the degree and diploma levels were set up. Some of the National/ high level institutions like Indian Institutes of Technology etc. received considerable foreign assistance under the various foreign assistance programmes. These institutions are now in highly developed stage and are in a position to help other sister institutions in the country. During the discussions held in the Planning Commission in August, 1978 between Education Secretary and Special Adviser to Deputy Chairman (Planning) regarding the foreign collaboration for educational programmes it was emphasised that while preparing programmes for technical assistance, it was important to take into account the expertise that has grown in our own country. It was felt that it was not necessary to seek outside technical assistance for the purpose and it would be useful to involve our higher technical institutions like Indian Institutes of Technology for providing technical assistance to less developed institutions in the country. The idea was further developed in a series of meetings of different expert committees. As a result of deliberations during these meetings of the expert committees, the following important recommendations emerged:

- 1) To start with, beginning should be made by developing a network between the Regional Engineering Colleges and the Indian Institutes of Technology to derive the optimum benefit from the infrastructure and facilities created in these institutes.
- 11) As a first phase, major programmes should be concentrated in the following four areas:
  - a) Faculty exchange
  - b) Faculty Development
  - c) Laboratory Development, and
  - d) Research Participation.
- 111) It would be desirable to develop every year at least two laboratories in each Regional Engineering College in the country. This

may require a minimum amount of Rs.10 lakhs per year for each college. To meet this requirement, 50% of the amount should be met by the Regional Engineering Colleges from their own Plan Budget and remaining 50% should be made available to them by the Ministry from the provisions made under the Scheme of Direct Central Assistance and other quality improvement programmes.

- iv) To achieve the above collaboration, the following groupings have been made:

<u>Name of the Indian Institutes of Technology</u>	<u>Name of the Regional Engineering Colleges.</u>
(a) Indian Institute of Technology, Delhi.	Regional Engineering Colleges at Kurukshetra, Jaipur and Srinagar.
(b) Indian Institute of Technology, Kanpur.	Regional Engineering Colleges at Allahabad and Bhopal.
(c) Indian Institute of Technology, Kharagpur.	Regional Engineering Colleges at Durgapur, Jamshedpur, Rourkela and Silchar.
(d) Indian Institute of Technology, Bombay.	Regional Engineering Colleges at Nagpur and Surat.
(e) Indian Institute of Technology, Madras.	Regional Engineering Colleges at Tiruchirapalli, Warangal, Calicut and Surathkal.

In order to give a practical shape to the scheme and to promote its implementation on effective lines, a National Committee has set up under the Chairmanship of Prof. R. N. Dogra, Chairman, Board of Governors, Indian Institute of Technology, Kanpur, with the approval of the Union Education Minister, in his capacity as Chairman, All India Council for Technical Education. The Committee has already laid down definite guidelines for formulating the projects in respect of individual Regional Engineering Colleges to achieve the objectives for which the scheme has been formulated. The Principal of each Regional Engineering College is expected in the first instance to have detailed discussions with the heads of the various departments and other faculty members to determine the priorities. Based on the deliberations of these internal meetings, two specific laboratories which have greater priority are to be

identified for development in each year of the sixth Plan period. Also based on these internal discussions, two faculty members are to be selected to act as Coordinators for the proposed project. Simultaneously, the Director of the concerned institutes of Technology in consultation with senior faculty members is expected to nominate two faculty members from Indian Institute of Technology side to act as Coordinators. As soon as the Coordinators on both the sides have been identified, the detailed work is to be entrusted to them to formulate the projects for the development of the selected laboratories. A proforma has also been prepared for the formulation of the detailed project in each case a copy of the proforma thus prescribed may be seen at Annexure XXVIII. The Committee has since held two meetings. A copy each of the minutes of these meetings may be seen at Annexures XXIX and XXX.

Under the guidance of the above National Expert Committee, the individual projects of most of the Regional Engineering Colleges for the year 1980-81 have been formulated. These projects are screened by the Expert Committee as and when they are received. The necessary grants for the projects, which have already been approved will, however, be released only after the scheme has been approved by the Expenditure Finance Committee. The Scheme has been referred to the Planning Commission and after its approval will be placed before the Expenditure Finance Committee. Further necessary action to implement the scheme and release the necessary grants will be taken only after the recommendation of the Expenditure Finance Committee have been made available. For the present the Scheme is proposed to be confined to the Indian Institutes of Technology and Regional Engineering Colleges. However, gradually the scope may be extended to all other technical institutions both at the degree and diploma level including State Engineering Colleges, private colleges and polytechnics thus establishing a comprehensive network covering all institutions generating favourable conditions and healthy atmosphere for rapid development and fast growth of his developed institutions. Under the new schemes of Quality Improvement Programmes, a provision of Rs.800 lakhs has been approved during the Sixth Plan period. The scheme under reference will be implemented as one of the new scheme of Quality Improvement for which a total outlay of Rs.375 lakhs may be required during the Sixth Plan. The Scheme has been referred to the Planning Commission for approval. Thereafter it will be processed through

the Expenditure Finance Committee. The necessary grants for the various projects approved under the scheme will be released after the Scheme is approved by the Expenditure Finance Committee.

The matter is reported to the Council.

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Item No. 20: To consider the question of conferring statutory status to the All India Council for Technical Education.

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The determination and maintenance of standards of technical education has been the constitutional responsibility of the Central Government even before the inclusion of the education in the Concurrent List. For this purpose and to ensure coordinated development of technical education of technical education in accordance with the approved standards, the All India Council for Technical Education has been set up as a National Expert Body to advise the Centre and the States in the matter. The Council comprises of the representatives of the Central Ministries, State Governments, technical institutions, universities, University Grants Commission, professional bodies, trade, commerce, labour, Members of Parliament and all other interests concerned with the development of technical education. The Council was established by a Resolution of the Government in the year 1946. During all these years, it has played a very significant role in the development of technical education in the country.

During the year 1947-48, there were only 53 polytechnics admitting annually 3670 students to diploma courses in engineering and 38 engineering colleges and technological institutions admitting annually 2940 students to degree courses in engineering. In the year 1967-68, the number of polytechnics arose to 284 and the degree institutions to 137 with an annual admission capacity of 25,000 for degree students and 47,000 for diploma students. This phenomenal expansion in the facilities of technical education has been unparalleled and unprecedented anywhere else in the world. Besides, at the time of Independence, the courses were in the broad fields of Civil, Mechanical and Electrical Engineering whereas by now a number of courses in new fields including telecommunication, electronics, chemical textile, aeronautical, architecture, applied art, mining, metallurgy, printing and most of diversified courses in the narrow specialised branches particularly at the diploma

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level have been introduced. Further the postgraduate education was practically non-existent at the time of Independence whereas today more than 60 institutions are offering facilities for postgraduate courses in the various branches of engineering and technology throughout the country. The number of polytechnics and degree courses has also further arisen and today we have nearly 150 institutions offering degree courses in engineering and technology and 335 polytechnics offering diploma courses in engineering and technology.

Five Indian Institute of Technology which are institutes of national importance have also been set up to serve as fountain head of knowledge and to make fundamental contribution to the advancement of science and technology in the country. A number of other specialised institutions have also been set up and/or developed with the advice and guidance of the All India Council for Technical Education. These include Indian Institute of Science, Bangalore, National Institute of Training in Industrial Engineering, National Institute of Foundry and Forge Technology, Technical Teachers' Training Institutes, Indian School of Mines, Dhanbad, Regional Engineering Colleges, National Institutes of Management, School of Planning & Architecture, New Delhi, National Institute of Sugar Technology, Kanpur etc. The All India Council for Technical Education has also played a very significant role in improving the standards and quality of technical education. The Quality Improvement Centres have been set at the Indian Institutes of Technology, Indian Institute of Science, Bangalore, University of Roorkee and a number of other well-developed institutes for the degree and post-graduate courses and at the Technical Teachers' Training Institutes and Allahabad Polytechnic, Allahabad for diploma courses in engineering and technology. In pursuance of the recommendations of the All India Council, a number of quality improvement schemes have been instituted for the faculty development and



curriculum development. Also to meet the felt needs of industry, a number of measures have been promoted on the advice of the All India Council for Diversification of courses, practical training of students in an industry and close collaboration between technical institutions and industry in various aspects for the training of right type of engineers/technologists and technicians in the country.

All this progress and development has been possible because the recommendations made by the All India Council for Technical Education from time to time under the Chairmanship of the Union Education Minister were accepted as a matter of course both by the Central and State Governments. However, recent trends indicate that many important recommendations of the Council having a direct bearing on the development of technical education on the approved lines and on the improvement of quality and standards of technical education have either been neglected or overlooked. Earlier, no new institutes could be established or a new courses could be introduced in any of the institutions in the country unless the same were approved by the All India Council for Technical Education after a thorough investigation through its regional and other expert committees. However, in the recent past, some of the States have gone ahead in establishing new institutions and new courses without taking the prior approval of the All India Council for Technical Education. The question of approval of some of such schemes is still going on and may take time before it may become possible to accommodate these institutions and courses within the State Plans provision.

However, a more serious situation has arisen in the State of Karnataka where there has been a mushroom growth of the private engineering colleges in the recent past which are being established outside the State Plan. The permission for the establishment of these colleges and also for adopting the unhealthy practice of charging huge sums of donations and capitation fees for admission to the degree courses in engineering and technology offered by them is granted by the State Government.

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Earlier also, during the years 1957-63 seven Engineering Colleges were established in the State of Karnataka without the approval of the All India Council for Technical Education. The Council expressed serious concern over the establishment of these institutions and urged the State Government and the Universities concerned to rectify the situation. In pursuance of the recommendations of the Council, the matter was pursued with the State Government and the Universities concerned through the University Grants Commission and finally with the assistance of the State Government, three institutions were brought under the State Grant-in-Aid Code for development in accordance with the prescribed standards. The other four institutions continued to be outside the State Grant-in-Aid Code in spite of repeated concern expressed by the Council and the Ministry.

Notwithstanding the past alarming situation, the State Government of Karnataka have further gone ahead to allow the establishment of 9 more engineering colleges in the State in the 1979-80 and 10 engineering colleges in the year 1980-81. These colleges have also adopted the unhealthy practice of charging capitation fee from the students as against the admission on academic merit. The situation is further worsening after the Chief Minister of Karnataka State has announced the policy of the Government to give recognition to all those who wish to open engineering colleges.

Seeing the unchecked exercise of State Government of Karnataka, the other State Governments have also started following suit. We have been recently informed that the State Government of Andhra Pradesh have also given permission to three private engineering colleges in the year 1979-80 and 5 engineering colleges in the year 1980-81 and also allowed them to charge capitation fee for admission to the various courses in engineering and technology offered by them.

The establishment of such substandard institutions on commercial basis is not at all conducive to the healthy development of technical education in the country. This practice will not only deteriorate the standards of technical education and training but is also counter to the socialistic goal of our society in as much as it violates the fundamental principles of offering equal opportunities to all eligible candidates on the basis of merit.

The Estimates Committee of the Lok Sabha in its Ninth Report on Higher Technical Education has taken a very serious note of such an unhealthy situation obtaining in the State of Karnataka. The Estimates Committee showed concern at the helplessness of the Government and the University Grants Commission in stopping the practice of charging capitation fee from students for admission to engineering courses. The Committee strongly recommended that the Government should see that in future no institution is set up with the specific approval of the All India Council for Technical Education. The Committee further desired that if there are any legal or procedural loopholes which make it possible to get round this requirement, the Government should take effective action to plug the same. The Committee further desired that it would like to be informed of the concrete measures taken in pursuance of their recommendations and the success achieved.

In this connection, it may be pointed out that the All India Council for Technical Education is only an advisory body and it has no authority to enforce its recommendations. The problem of improvement of quality of education which is vital to the maintenance of proper standards, on the other hand poses major challenge in the field of technical education. If the All India Council for Technical Education has to be effective in ensuring balanced development of technical education both in terms of quality and quantity, the Council may be vested with statutory powers to regulate and maintain the standards of technical education in the country. The Council

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is to advise both the Centre and the State and has to perform the following important role in this connection:

- i) to survey the whole field of technical education from time to time in consultation with the concerned States to advise about the establishment of new institutions or new courses;
- ii) to review critically through appropriate committees the academic aspects of training including the level of performance in laboratories and standards of instructions in institutions at the various levels and suggest measures for effecting improvement from time to time;
- iii) to give advice to the Centre and the States about the coordinated development and suggest measures to fill the identified gaps and meet the requirements of emerging technologies;
- iv) to promote meaningful interaction between technical institutions, industry and other technical/research establishments to ensure right type of training to engineers, technologists and technicians trained by our technical institutions;
- v) to consider and recommend the institution of new schemes for improvement of quality and the overall system of technical education.

All these responsibilities can be discharged in a meaningful manner by the All India Council for Technical Education provided it has a statutory status. As at present, the Union Education Minister can continue to be the

Chairman of this statutory body, which will further ensure its effective functioning. The Working Group on Technical Education which had been set up to review the present status of the nation's needs during the coming decade and to suggest reorientation and improvement to the existing programmes also in its report submitted in January, 1978, had recommended that the All India Council for Technical Education be vested with statutory powers for ensuring effective implementation of policy and programmes of maintenance of standards. The action on the recommendations of the Working Group could not be taken because the Council at its last meeting had suggested that measures other than making it statutory may be considered for the present. The other measures, however, have not been able to meet the situation which is further deteriorating, as explained above. Having regard to the urgency of the matter and the gravity of the situation, it is, therefore, proposed to take up the question of processing the legislation for giving statutory status to the All India Council for Technical Education.

The matter is placed before the Council.

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Item No. 21: To review the policy regarding the question of facilities in the field of Technical Education.

In November, 1977, the Ministry of Education and Culture, Government of India, set up a Working Group on Technical Education to review the present status of the nation's needs for the coming decade and to suggest reorientation and improvements to the existing programmes. The Working Group, identified 5 subjects, which required in-depth study which could form the basis for further deliberations. This subject on 'Technical Education for the Arts' was one of these five subjects. In this connection, the Working Group in its report observed that a tentative and overall quantitative assessment of the existing and technical manpower requirements for the next decade indicates that the present annual production capacity of 5,000 for short duration courses, 25,000 for first degree courses and 50,000 for diploma and certificate courses. It would be possible for the existing institutions to raise a total of 100,000 by improving the existing capacity and by opening of new centres. The Working Group has recommended that the Central Board of Secondary Education should be empowered to set up a Council for Technical Education that would be established in January, 1978, to coordinate the activities of the Working Group and to act as a national institution, that the Government should increase the supply of technical manpower by improving the efficiency and effectiveness of production processes. Shifts in the relationship between disciplines may be expected to cater to the changing manpower needs. In pursuance of these recommendations, the proposals for the improvement of technical institutions are under consideration.

There is, however, great pressure from the different States for establishment of new institutions on the ground that there is a general demand of technical manpower both at the diploma and degree levels. The questions are also raised for redressing imbalances in technical education facilities both at the regional and State levels, for providing facilities for women and other weaker sections of the society and for experimenting with innovations such as joint ventures of Government and Industry. The tentative projections made by the Planning Commission also indicate that by 1985-86

may be a shortage of graduate engineers of the order of 2,000 and a surplus of 110,000 of diploma holders. The projections of the Planning Commission, therefore, tend to support, at least in respect of graduate engineers, the claims of the States about the shortage. The Commission's estimates are only tentative, but the States have to cater to account because it is essential for to establish an engineering college and the planning commission adjustment factor has to be made accordingly.

At the diploma level also, the projections of the Planning Commission, which are tentative, tend to support the claims of the States about the shortage of diploma holders. The Commission's estimates are only tentative, but the States have to cater to account because it is essential for to establish an engineering college and the planning commission adjustment factor has to be made accordingly.

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- 3) The new institutions to be extended are / started or located in either areas of high existing employment potential or in economically backward region, and/or are for the Institutions advancement of weaker sections of the to be Community.

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**Item No.22: To report on the formulation of the Series of Advanced Technician Programmes.**

A Working Group on Technical Education was set up by the Ministry of Education and Culture in November, 1977 to review the present status of nation's needs during the coming decade and to suggest reorientation and improvement to the existing programmes. The Working Group in its Report, inter alia, felt need for organising Advanced Technician Programmes. The Working Group observed that professional role of a technician varies from industry to industry. The education of a technician in the institution, therefore, necessarily is broad-based. However, once the Technician takes up employment he is called upon to occupy variety of job positions. It is, therefore, necessary to give him the skills required for this purpose to cope up competently in this role with his responsibilities. To meet diverse requirements and challenges in his profession, a technician will have to be provided facilities for his continuous education and for acquiring new competencies. In this context, advanced technician courses would be useful. The All India Council for Technical Education in its last meeting held in February, 1978, considered the recommendations and resolved that selected institutions should be given central assistance to conduct advanced technician programmes.

In pursuance of above recommendations, an Expert Committee was set up under the Chairmanship of Sri M.S. Padmanabhan, Technical Director, Tata Engineering and Locomotive Company Limited (now TCE Limited), to work out necessary details and to prepare a project report for organising the Advanced Technician Courses. The Expert Committee held its first meeting on September, 1978. To further investigate the felt needs of industry, the scope of the Advanced Technician Courses, the positions for which the proposed courses could train technical manpower and the overall impact that the introduction of these courses shall have over the technical education in the country, the Chairman and the members of the Committee held detailed discussions at Madras, Calcutta, Bhopal and Chandigarh with the faculty of Technical Teachers' Training Institutes and the persons from industry and other interests concerned. The views from the State Directors of Technical Education were also invited. In writing about the institutions which have potential to conduct such courses and the various areas/fields which warrant the introduction of these Advanced Technician Courses. Taking into

account these views and in the light of the spadework done by the Chairman and the Member-Secretary, the following points emerged which were considered and accepted by the Committee at its second meeting held on the 4th October, 1980:

- i) The wide range of job spectrum in industries particularly in the specified areas require more adequate preparation of the Technicians.
- ii) The training in the present three year broad-based diploma course in engineering and technology is not adequate to meet the responsibilities requiring of a technician at an advanced level. The present post-diploma course also cannot meet this requirement.
- iii) Higher courses at advanced level separate from degree courses and also different from post-diploma courses should be available to Technicians to advance professionally in their own lines.
- iv) Avenues for advancement at technical level also demands introduction of a series of Technician Diploma Courses. Introduction of such courses would meet the aspirations of the present diploma holders to advance in their profession.
- v) These courses should be organized at selected polytechnics in the country at least one in each State.
- vi) Involvement of industry in running these courses should be maximum. Preferably, such courses should be run or sponsored by IITs. The Courses should give advanced knowledge on:
  - a. Special Technical Subjects.
  - b. Managerial subjects, and
  - c. relevant fundamental subjects.

Credits may be given on the basis of projects taken up in industry.

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- vii) The total duration of such courses should generally be equivalent to two years of full-time studies.
- viii) The faculty for such courses will require special training for which necessary arrangements shall have to be made well in advance.
- ix) From amongst 38 fields/areas suggested by different quarters, the fields in which the advanced Technician courses could be organised at present having regard to the clear and well-established needs of industry would be as follows:
  - a) Foundry
  - b) Industrial Airconditioning
  - c) Instrumentation
  - d) Plant Engineering
  - e) Refrigeration and Airconditioning
  - f) Supervisory Development
  - g) Tools engineering
  - h) Building and fabrication engineering

In the light of the above guidelines, the Committee considered the question of identifying institutions from amongst those contained in the suggestions received from the different quarters for organising these Advanced Technician Courses. The Committee felt that introduction of these courses being a new experiment in Technical Education, it would be advisable in the first instance that these courses may be introduced at four selected institutions - one course in one polytechnic in each region. On the basis of the experience that may be gained from these four centres, the facilities may be further extended as considered necessary so as to have at least one centre in each State in the course of time. In the Northern, Western and Southern regions, the Committee identified the following institutes having very close collaboration with industry and specialised experience in this direction, for organising the

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courses as given against their names:-

<u>Name of the Institute</u>	<u>Name of the Course</u>
1.Y.M.C.A. Institute of Engineering, Faridabad.	Tool Engineering
2.C.M. Kothari Technological Institute, Madras.	Air Conditioning and Refrigeration Engineering.
3.Shri. Bhagubhai Mafatlal Polytechnic, Bombay.	Tool Engineering

The Committee further considered the various other relevant aspects for organising the Advanced Technician Courses at the above-mentioned three selected polytechnics and made the following recommendations in regard to intake duration, sponsorship of industry and facilities:

Duration:

The duration of the course in each polytechnic should be two years and the course should be conducted on sandwich pattern. The uniformity in duration and standard of the course will facilitate the task of securing appropriate recognition for the diploma awarded on the basis of successful completion of this course.

Intake:

The annual intake of the course should be 25 to start with. Further increase in the course may be effected only after acquiring some experience and on the basis of felt needs of industry for these diploma holders. The admission to the course shall be made on All-India basis.

Sponsorship:

At least 20 per cent of the students i.e. 5 out of 25 should be sponsored in industry. This is necessary to facilitate the absorption of these diploma holders in the appropriate positions at the expected level. The Committee was quite clear in its mind that the proposed Advanced Technician Diploma would be intended to provide manpower for such of the positions

which today are manned by degree holders in engineering but can be better served by the product of the proposed Advanced Technician Diploma Courses.

### Physical Facilities

#### (i) Building and Equipment:

The Committee recommended that a ceiling of Rs.12 lakhs may be fixed for providing facilities by way of building and equipment out of which the expenditure on building should not exceed Rs.2.00 lakhs. The Committee expected that the Polytechnics will be in a position to get a lot of equipment as donation also from Industry because of their effective interaction and Collaboration.

#### (ii) Staff :

The Committee recommended that one post of the Head of the Department and three posts of lecturers may be provided for organising the proposed Advanced Technician Diploma Course. The Committee further stipulated that one of the three lecturers would be assigned the responsibility of supervising the in-plant training in industry. This is necessary for effective organisation of the course on the sandwich pattern. Head of the Department shall be preferably in the pay scale of Rs.1200-1900 and the lecturer in Rs.700-1600 plus different allowances as advisable to the teaching staff in the respective States.

#### (iii) Non-Teaching Staff:

The Supporting staff should be appointed as per requirements. However, the total expenditure on supporting staff should not exceed 35 per cent of the expenditure on the teaching staff.

The minutes of the first meeting held in September, 1978, may be seen at Annexure ~~XXXII~~. The minutes of the second meeting of the Expert Committee held on 4th October, 1980 containing the above recommendations and the basis for the same are also attached and may be seen at Annexure ~~XXXIII~~. In the light of the recommendations

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of the Committee, the projects of the three institutions have been formulated. A specimen copy of the project of the C.M. Kothari Technological Institute, Madras is attached and may be seen at Annexure-XXXI.

The introduction of the Advanced Technician Courses is very important as trained technicians in this level are not available at present. The positions requiring trained personnel through such advanced technician programmes are classified as engineering supervisors, maintenance engineers and service managers. These courses will also provide an opportunity to the holders of the diploma engaged in the profession to improve their prospects for occupying the higher positions. The institutions concerned have already done necessary planning to introduce these courses with effect from the academic session 1981-82. The Planning Commission has already approved a provision of Rs.300 lakhs for new Schemes of Continuing Education, and this will be one of the schemes of Continuing Education. The total cost of the scheme during the Sixth Five Year Plan in accordance with the recommendations of the Expert Committee will be of the order of Rs.600 lakhs. The scheme was referred to the Planning Commission who have approved the same subject to the following slight modifications:-

- 1) The contribution of the industry in the programme, to the extent it is possible, should be quantified on the ~~for~~ total terms in each project;
- 2) The industry should sponsor 50% of the intake in stead of 20% proposed in the scheme. This will help in making the programme more employment oriented;
- 3) The possibilities of starting these courses in the evening should also be explored. The trainees need not be absent from their job for attending courses and the industry will not have to spare these people from their work;
- 4) The programme may be made self-sustaining as far as possible in respect of recurring expenditure by charging suitable fees.

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The scheme after incorporating the suggestions of the Planning Commission will now be referred to the Expenditure Finance Committee for consideration. The institutions concerned can make a beginning only after the necessary funds are granted to them to provide the required facilities. This will, however, be possible after the recommendations of the Expenditure Finance Committee are made available.

The matter is reported to the Council.

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